Über dieses Buch

Dies ist ein digitales Exemplar eines Buches, das seit Generationen in den Regalen der Bibliotheken aufbewahrt wurde, bevor es von Google im Rahmen eines Projekts, mit dem die Bücher dieser Welt online verfügbar gemacht werden sollen, sorgfältig gescannt wurde.

Das Buch hat das Urheberrecht überdauert und kann nun öffentlich zugänglich gemacht werden. Ein öffentlich zugängliches Buch ist ein Buch, das niemals Urheberrechten unterlag oder bei dem die Schutzfrist des Urheberrechts abgelaufen ist. Ob ein Buch öffentlich zugänglich ist, kann von Land zu Land unterschiedlich sein. Öffentlich zugängliche Bücher sind unser Tor zur Vergangenheit und stellen ein geschichtliches, kulturelles und wissenschaftliches Vermögen dar, das häufig nur schwierig zu entdecken ist.

Gebrauchsspuren, Anmerkungen und andere Randbemerkungen, die im Originalband enthalten sind, finden sich auch in dieser Datei – eine Erinnerung an die lange Reise, die das Buch vom Verleger zu einer Bibliothek und weiter zu Ihnen hinter sich gebracht hat.

Nutzungsrichtlinien

Google ist stolz, mit Bibliotheken in partnerschaftlicher Zusammenarbeit öffentlich zugängliches Material zu digitalisieren und einer breiten Masse zugänglich zu machen. Öffentlich zugängliche Bücher gehören der Öffentlichkeit, und wir sind nur ihre Hüter. Nichtsdestotrotz ist diese Arbeit kostspielig. Um diese Ressource weiterhin zur Verfügung stellen zu können, haben wir Schritte unternommen, um den Missbrauch durch kommerzielle Parteien zu verhindern. Dazu gehören technische Einschränkungen für automatisierte Abfragen.

Wir bitten Sie um Einhaltung folgender Richtlinien:

+ *Nutzung der Dateien zu nichtkommerziellen Zwecken* Wir haben Google Buchsuche für Endanwender konzipiert und möchten, dass Sie diese Dateien nur für persönliche, nichtkommerzielle Zwecke verwenden.
+ *Keine automatisierten Abfragen* Senden Sie keine automatisierten Abfragen irgendwelcher Art an das Google-System. Wenn Sie Recherchen über maschinelle Übersetzung, optische Zeichenerkennung oder andere Bereiche durchführen, in denen der Zugang zu Text in großen Mengen nützlich ist, wenden Sie sich bitte an uns. Wir fördern die Nutzung des öffentlich zugänglichen Materials für diese Zwecke und können Ihnen unter Umständen helfen.
+ *Beibehaltung von Google-Markenelementen* Das "Wasserzeichen" von Google, das Sie in jeder Datei finden, ist wichtig zur Information über dieses Projekt und hilft den Anwendern weiteres Material über Google Buchsuche zu finden. Bitte entfernen Sie das Wasserzeichen nicht.
+ *Bewegen Sie sich innerhalb der Legalität* Unabhängig von Ihrem Verwendungszweck müssen Sie sich Ihrer Verantwortung bewusst sein, sicherzustellen, dass Ihre Nutzung legal ist. Gehen Sie nicht davon aus, dass ein Buch, das nach unserem Dafürhalten für Nutzer in den USA öffentlich zugänglich ist, auch für Nutzer in anderen Ländern öffentlich zugänglich ist. Ob ein Buch noch dem Urheberrecht unterliegt, ist von Land zu Land verschieden. Wir können keine Beratung leisten, ob eine bestimmte Nutzung eines bestimmten Buches gesetzlich zulässig ist. Gehen Sie nicht davon aus, dass das Erscheinen eines Buchs in Google Buchsuche bedeutet, dass es in jeder Form und überall auf der Welt verwendet werden kann. Eine Urheberrechtsverletzung kann schwerwiegende Folgen haben.

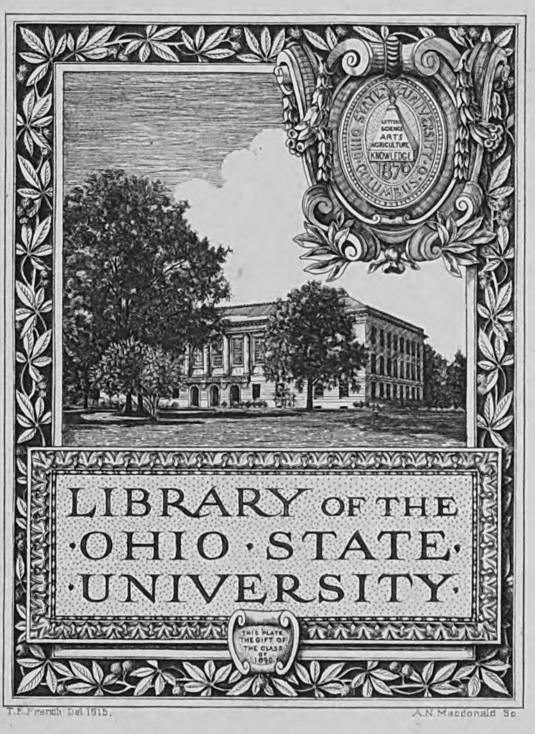
Über Google Buchsuche

Das Ziel von Google besteht darin, die weltweiten Informationen zu organisieren und allgemein nutzbar und zugänglich zu machen. Google Buchsuche hilft Lesern dabei, die Bücher dieser Welt zu entdecken, und unterstützt Autoren und Verleger dabei, neue Zielgruppen zu erreichen. Den gesamten Buchtext können Sie im Internet unter `http://books.google.com` durchsuchen.

This is a reproduction of a library book that was digitized by Google as part of an ongoing effort to preserve the information in books and make it universally accessible.

Google books

https://books.google.com



LIBRARY OF THE
·OHIO·STATE·
·UNIVERSITY·

THIS PLATE
THE GIFT OF
THE CLASS
OF
1890

T.E. French Del 1915,
A.N. Macdonald Sc.

June 25, 1927.

THE

GARDENERS' CHRONICLE

A Weekly Illustrated Journal

OF

HORTICULTURE AND ALLIED SUBJECTS

(ESTABLISHED IN 1841.)

VOL. LXXXI.—THIRD SERIES.

JANUARY TO JUNE, 1927.

LONDON
5, TAVISTOCK STREET, COVENT GARDEN, W.C.2
1927.

OHIO STATE UNIVERSITY

INDEX OF CONTENTS.

JANUARY TO JUNE, 1927.

(FOR SPECIAL HEADINGS SEE UNDER ANSWERS TO CORRESPONDENTS; BOOKS; CERTIFICATED PLANTS, ETC.; NURSERY NOTES; OBITUARY; PLANTS, NEW; SOCIETIES; AND ILLUSTRATIONS.)

A

ABERDEEN UNIVERSITY, FORESTRY DEGREE AT, 173
Abies pectinata, 353
Abyssinia, Central, flora of the highlands of, 331
Acacia Hanburyana, 124
Acidity and lawns, 271
Acokanthera spectabilis, 148
Adonis amurensis, 47
Adonis gardens in scripture, 82, 146
Advertisements and open spaces, 172
Aerides and allied plants, 46
Aesculus californica, 284
Aglaonema costatum, 95
Agricultural workers, scholarships for, 188, 366
Agriculture: in 1926, 365; the transition of, 388
Aldenham House Gardens: effects of the frost at, 398; opened to the public, 388
Algiers, a horticulturist in, 295
Alnus oregona, 264
Alpine garden, 6, 47, 65, 80, 96, 112, 128, 143, 160, 181, 192, 210, 228, 247, 265, 282, 300, 318, 336, 352, 369, 392, 410, 428
Alpines, top-dressing, 80
Alyssum serpyllifolium, 228
America: Carnations in, 96; hardy Lilies in, 103; Paeony disease research in, 424
American Iris Society, 188, 241
Andes, new species from the, 407
Androsace Laggeri, 352; A. sarmentosa, 181
Anemone potentilloides, 381
Anemones of the Hepatica section, 48.
Angraecum, 318
Angus, Mr. George, 332
Annuals, 228
Anopterus glandulosus, 95

Answers to Correspondents :— ALGAE, SULPHATE OF COPPER TO DESTROY, 404; Azalea attacked by a fungus, 154; Begonias, the management of winter-flowering, 138; Bell-bine in an allotment, 138; Berberis plants, rust on, 363; Boundaries and neighbour's rights, 330; Brussels Sprout leaves with circular spots, 221; Cabbages: Chinese, 293; club root in, 40; Calceolarias with yellow foliage, 239; Carnation Laddie, 186; Cats in a garden, 138; Club root in Cabbages, 40; "Codlin," origin of, 442; Cress, edible, 363; Cypripedium blooms turning brown, 106; Daffodil, double, 363; Dendrobium plumtonense, 421; Escallonia macrantha hedge, pruning an, 257; Ferns, fumigating Adiantum, 20; Figs, unhealthy, 363; Flowering trees for a garden, 442; Flowers for cut blooms, 170; Flowers to follow Chrysanthemums, 57; Foliaceous Pear flowers, 385; Fruit buds damaged, 330; Fruit trees, summer pruning of, 186; Fungus and moss on a lawn, 311 Fungus: in Cucumber and Begonia houses, 421; on an Azalea, 154; Gardener's illness and State insurance, 221; Gardener's notice, 275, 330; Gardener's wages during illness, 106; Green beetle on Rhubarb, 346; Griffinia hyacinthina, 154; Hippeastrums 154: mealy bug on, 363; Holly seeds, 221; Hydrangeas: blue-flowered, 239; with anaemic-looking leaves, 346; Insect pests, preserving, 90; Kew flag-staff, 203; Laurel hedge, 293; Lawns, fungus and moss on, 311; Leather jackets in a new rockery, 363; Lettuces diseased, 311; Lycium barbarum, 442; Maidenhair Ferns, weevils eating the roots of, 20; Mealy bug on Hippeastrums, 363; Melon seedlings failing, 293; Mulberry tree, repairing a, 20; Muscat of Alexandria Vine leaves scorched, 363; Nectarines failing to set, 330; Palms with pale foliage, 275; Peaches failing to set, 330; Pear midge, 203; Pear trees: failing to fruit satisfactorily, 20; unfertile, 385; Poplar trees, insects on, 363; Pruning of fruit trees, summer, 186; Raspberry Moth grubs, 346; Richardia, double-spathed, 221; Roses, spraying, with copper sulphate, 138; Rust on Berberis plants, 363; Sclerotia in soil, 363; Silky fibre from tree, 363; Spraying Roses with copper sulphate 138; Sulphate of copper and green algae, 404; Tomatos: diseased, 421; lacking colour, 385; Tulips: broken, 385; short-stemmed, 257; with branched stems, 385; Vegetables for a family of seven, 293; Vine border, making a, 57; Vines unhealthy, 442; Vinery, an early, 442; Violet leaf blotch, 293; Weed-killer, a non-poisonous, 221; Weevils eating the roots of Maidenhair Ferns, 20; White fly fumigants and plants, 74; Wire enclosures for fruit trees, 442; Woolly aphis, 20.

Anthemis tinctoria Kelwayi, 352
Anthusa italica Dropmore variety, 264
Antirrhinums, 112; and other flowers from cuttings, propagating, 264
Antwerp, centenary exhibition at, 188
Aphyllanthes monspeliensis, 323
Apiary notes, 102, 166, 198, 305
Apples: Allington Pippin, 55; Arthur Turner, 55; Belle de Boskoop, 439; Herring's Pippin, 86; Hoary Morning, 37; Joy Bells, 73; Norfolk Beauty, 55; Rev. W. Wilks, 71; Rival 71; River's Early Peach, 358; The Queen, 151; Wealthy, 271; Wyken Pippin, 358;
Apple exports, Canadian, 242
Apple Scab, effect of shade on 305, 343
Apples and Pears imported from New Zealand, 156
Apples: arsenic on imported American, 108, 242; biennial cropping of, 17, 37, 55, 73, 86, 166; late-flowering, 358; stock and scion of, 155; stocks for, 199
Aquilegias, 160
Arboretum for Ontario, an, 207
Arctotis scapigera, 264
Arenaria Ledebouriana, 160
Arnebia echioides, 247
Arnold Arboretum, changes at the, 389
Artichoke, Jerusalem, 17
Articles, buying patented, 416
Ashridge Park, 243
Ash, the flowering, 81
Asperula arcadiensis, 47
Asters, 264
Asystasia bella, 46
Audouinia capitata, 301
Auricula inflorescence, a large, 440
Auriculas at Nether Warden, 410
Australian fruit imports, 424
Austrian Horticultural Centenary, 367
Auton, Mr. W., 349
Award of Garden Merit, the, 92
Azalea, Glory of Littleworth, 29
Azaleas: a new disease of, in Germany, 109; exhibition of, in Paris, 277; Hungarian import tax on, 313; leaf scorch of, 286; notes on Japanese, 97

B

BAHIA LANATA, 6
Bailey, Dr. L. H., awarded the White Medal, 206
Bamboos, the growth of, 266
Banana trade in Bristol, 405
Barr Memorial Daffodil Cup, award of the, 260
Bay Islands, Honduras, economic plants of the, 50, 69, 81, 117, 133, 180, 217, 270, 305, 413
Baptisia australis, 113
Beans, 199; Runner, 360
Beckett, E. (*Vegetables for Home and Exhibition*), 165
Beddington Park, opening of, 224
Beds, two pretty, 80
Bee, the leaf-cutting, 155
Beet, 306
Begonia La Patrie, 1, 9; B. manicata, 264
Begonias, winter-flowering, 9
Belgium: horticultural education in, 242; imports of fruits and vegetables from, 206
Bellis rotundifolia coerulescens, 112
Berberis Julianae, 300
Berlin: Genetic Congress in, 22; memorial to Parks founder in, 425; the nursery trade in, 60
Bertolonias, 246
Besant, Mr. W., 140
Billardiera longiflora, 7
Birmingham Botanical Gardens, summer show at the, 155; postponement of the, 242
Blackburn, Mr. Arthur, 224
Black Currant bushes, inspection and certification of, 423
Black Currants, 451; the eradication of big bud in, 107, 183
Blackpool, a big flower show for, 75
Bog Gardens, 48, 65, 228, 265
Bolting, the problem of, 320, 372, 398, 417

Books, notices of :—A treatise on Viticulture (*A. I. Perold*), 324; A Year in My Flower Garden (*E. T. Brown*), 182; Blumen im Hause (Willy Lange), 53; Carnations for Amateurs (*J. L. Gibson*), 270; Classified List of Daffodil Names, 260; Dahlia Year Book, 332; Das Dahlienbuch (*Karl Foerster and Camillo Schneider*), 100; Farrer's Last Journey (*E. H. M. Cox*), 14; Flowering Plants of South Africa, 241; Gardens for Town and Suburb (*V. N. Solly*), 182; Inorganic Plant Poisons and Stimulants (*Winifred E. Brenchley*), 123; Journal of the R.H.S. Gardens Club, 278; Le Chrysantheme (*J. Lochot*), 53; Les Différentes Cultures du Chrysanthème (*Vilmorin-Andrieux et Cie*), 286; Monografia na roda Colchicum (*B. Stefanoff*), 304; Neue Tabellen zu Frost und Licht als beeinflussende Krafte bei der Samenkeimung (*Dr. Wilhelm Kinzel*), 396; Potato varieties (*Redcliffe N. Salaman*), 21, 41; Praktische Anleitung Zum Frijtroebem von Planzen mittels Blausaure (*Prof. Dr. Gassner and W. Heuer*), 101; Sanders' Orchid Guide, 165; Soil Conditions and Plant Growth (*Sir E. J. Russell*), 171; Sweet Pea Annual, 76; The Cultivation of Citrus Fruits (*Harold Hume*), 233; The Field-Club Flora of the Lothians (*Edinburgh Natural History Society*), 416; The Gardener's Year Book 165; Tuinbouw Jaarboek, 132; Vegetables for Home and Exhibition (*E. Beckett*), 165; Webster's Foresters' Diary and Pocket Book, 101

Borthwick, Dr., presentation to, 124
Botanical legacy to a free library, 188
Botanical specimens for the Liverpool Museum, 223
Botanic gardens for Canada, 278
Botanic Gardens, Georgetown, 269
Botanic Gardens, Regent's Park, repairing the glasshouses at, 278
Bougainvillea glabra, hardiness of, 12
Bouvardias for winter decoration, 27
Bowling greens: sulphate of ammonia and, 436; the management of, 18
Bracken, disease of the, 2, 22
Brenchley, Winifred E. (*Inorganic Plant Poisons and Stimulants*), 123

Bristol's Banana trade, 405
Broccoli, branching, 325
Brown, E. T. (*A Year in My Flower Garden*), 182
Brussels, a Sweet Pea exhibition in, 261
Brussels Horticultural Congress, 347
Brussels International Horticultural exhibition, 43, 207, 389
Brussels Sprouts, 397
Budde, Mr. J. K., retirement of, 224
Buddleia Forrestii and B. Fallowiana, 22, 60, 136 ; B. globosa, 128
Buddleias, 211
Bulb garden, 79, 127, 160, 176, 210, 228, 352
Burford Lodge Gardens, 348
Burley Wood in the New Forest, the preservation of, 189, 278
Bushey Park, Hampton Court, gift of two paddocks in, 405
Butomus umbellatus, 228

C

CABBAGE BUTTERFLIES, 73
Cabbage root fly, 397
Cachrys laevigata, 47
Caladenia filamentosa, 113
Calanthes, 26 ; at Nether Warden, 148 ; deciduous, 8
Calcium cyanide, the destruction of rats with, 136
Campanula glomerata, 128
Canada : botanic gardens for, 278 ; imports of nursery stock into, 107 ; Roses in, 96
Cannizaro, some interesting shrubs at, 411
Cannon, Prof. H. G., awarded the Crisp Medal, 295
Capsid Bug, 370 ; in the Wisbech district, 260
Carbon dioxide, forcing plants by, 1
Cardiff fruit and Potato trade, 279
Carnation : leaf rot of the, 196, 216 ; a wilt disease of the, 150
Carnations : border, 161 ; in America, 96 ; new, 161 ; new varieties of perpetual-flowering, 96 ; perpetual, and the fuel shortage, 49 ; prizes for an essay on, 365
Carrots : early, in frames, 55, 118 ; maincrop and late, 450
Cattleyas, 26 ; and their allies, 282
Cauliflowers, a succession of, 151
Celeriac, 87
Celery, an amateur's 119 ; failure with, 17, 55, 103 ; trenches, 167
Celery fly, the, 359
Celery season, prolonging the, 450
Celery seed, the germination of, 417
Cemetery art in Baden, 43
Cemetery maintenance in Roumania, 349
Cerastium alpinum lanatum, 128
Cercidiphyllum japonicum, 264
Cercis Siliquastrum, 393

Certificated Plants :—

Acacia Baileyana, 88 ; A. fimbriata, 255 ; A. Hanburyana, 89 ; Aloe ciliaris, 89 ; Alstroemeria haemantha B. Ladhams, 453 ; Anemone High Hall Strain, 309 ; Aponogeton distachyon aldenhamense, 376 ; Arbutus furiens, 328 ; Arctotis breviscapa var. Durns, 255 ; A. scapigera, 255 ; Aster alpinus Shirley, 377 ; Aubrietia Carnival, 420 ; Aubrietia Vindictive, 420 ; Auriculas : Duchess of York, 255 ; Prince Henry, 256 ; Redstart, 343 ; Rolt's Fancy, 343 ; Azalea Benikirin, 453 ; A. John Jennings, 376 ; Azaleodendron Galloper Light, 377 ; **Begonias** : Mrs. A. Baldwin Bantock, 377 ; Mrs. F. Bedford, 377 ; Brasso-Cattleya Ajax, Llewelyn's var., 257 ; B.-C. Apollo, Hey House var., 361 ; B.-C. Bianca, 361 ; B.-C. Bianca, The Warren var., 308 ; B.-C. British Queen var. G.V. Llewelyn, 106 ; B.-C. British Queen var. Profusion, 106 ; B.-C. British Queen var. Renown, 106 ; B.-C. British Queen var. Thunderer, 19 ; B.-C. Digbyano Warneri, 361 ; B.-C. Empress of Russia var. Delicata, 308 ; B.-C. Enchantress, Beardwood var., 440 ; B.-C. frigida, 257 ; B.-C. G. V. Llewelyn, 272 ; B.-C. Hercules var. Etna, 106 ; B.-C. Jupiter var. Rex, 361 ; B.-C. Maronet, 361 ; B.-C. Mrs. Ernest Wood, 136 ; B.-C. Mrs. Robert Paterson var. Titanic, 219 ; B.-C. Penelope var. rubra, 106 ; B.-C. Queen Alexandra, Llewelyn'svar., 361 ; B.-C. Rivalto, 308 ; B.-C. speciosa magnifica, 255 ; B.-C. Springtide var. Ethel N. Satow, 255 ; B.-C. Ursula, 309 ; Brasso-Laelio-Cattleya Amber var. G. V. Llewelyn, 136 ; B.-L.-C. Everest, Beardwood var., 440 ; B.-L.-C. Irma var. grandiflora, 219 ; B.-L.-C. Lyra, 257 ; B.-L.-C. Philomela, 308 ; B.-L.-C. Rumania var. gigantea, 361 ; B.-L.-C. Ursula var. magnifica, 375 ; Burrageara Windsor var. purpurea, 419 ; Caesalpinia Gilliesii, 419 ; Calanthe Bessie Stewart, 74 ; Calceolaria A. C. 405, 453 ; Caltha palustris alba, 219 ; Camellia Lady Clare, 256 ; Carnations : Brilliant Improved, Page's var., 344 ; E. Lyall Swete, 377 ; Evelyn, 376 ; G. K. Phillips, 376 ; Lady Margaret Boscawen, 291, 329 ; Mrs. A. J. Cobb, 256 ; Vesta, 120 ; W. H. Page, 256 ; Cassiope Mertensiana, 328 ; Cattleya Clotho var. G. V. Llewelyn, 136 ; C. Clotho var. Ursus, 257 ; C. Empress Frederick, Llewelyn's var., 272 ; C. Enid alba var. Regina, 272 ; C. Enid alba var. Rex. 272 ; C. John Henry, Dell Park var., 88 ; C. Jupiter, 375 ; C. Maggie Raphael alba var. Exquisita, 19 ; C. Mossiae Levianthan, 440 ; C. Mrs. Ashworth, 272 ; C. Prince Shimadzu var. Springtide, 152, 257 ; C. Prince Shimadzu var. superba, 374 ; C. Rajah, Llewelyn's var., 169 ; C. Roseary, 255 ; C. Thora, Brockhurst var., 184 ; C. Tityrana, Hesketh var., 272 ; C. Tityrana, Llewelyn's var., 272 ; C. Tityus var. Imperial Prince, 169 ; C. White Empress, 257 ; C. White Empress, Brockhurst var., 120 ; Cercis racemosa, 376 ; Cistus cyprius immaculatus, 453 ; Clerodendron fragrans, 376 ; Chrysanthemum Perseus, 74 ; Colchicum croaticum, 120 ; Cornus florida var. rubra, 376 ; Cotyledon multicaulis, 89 ; Crocus biflorus Alexandri major, 152 ; Crocus x chrysanthus Curlew, 120 ; C. Imperati var. alba, 185 ; C. minimus, 152 ; C. gargaricus, 120 ; Cydonia Wisley Salmon, 309 ; Cymbidium Alexanderi var. Alice 257 ; C. Atalanta, Brockhurst var., 88 ; C. Erica Sander var. Goldilocks, 120 ; C. Erica var. Lord Lambourne, 375 ; C. Erica var. Orbis, 152; C. Flamingo Memoria Sir Geo. Holford, 184 ; C. Ivory Wings, 440 ; C. Pauwelsii, Ankersmit's var., 255 ; C. Pauwelsii aureum var. Mrs. Astley Bell, 361 ; C. Pauwelsii, Brockhurst var., 255 ; C. Pauwelsii var. Norah, 257 ; C. Rosanna, 184 ; Cypripedium Anita, 19 ; C. Arandora, 106 ; C. Aureoma, Haddon House var., 106 ; C. Baldur, Westonbirt var., 19 ; C. Bendigo, 19 ; C. Cathie Redmayne, 19 ; C. Chardwar var. Perfection, 56 ; C. Charlesworthii var. Merledene, 74 ; C. Chrispostum The Prince, 19 ; C. Chrispostum var. Amy Moore, 19 ; C. Christo-biades, 136 ; C. Christo-Moorei, 19 ; C. Chrysostum var. Lord Lambourne, 74 ; C. Clara Gibbons, 19 ; C. Cloudeslee, 74 ; C. Conference var. Golden Glory, 308 ; C. Crusader, 19 ; C. Elidia, 272 ; C. Elise, Towneley Grove var., 169 ; C. Eurybiades, Llewelyn's var., 169, 257 ; C. Eurybiades var. Remenham, 106 ; C. Golden Queen var. Gratrixiae, 106 ; C. G. V. Llewelyn, 106, 441 ; C. Hancar var. George Corser, 56 ; C. Helsa var. Ingrid, 308 ; C. Hesketh, 272 ; C. Imperator, 19 ; C. Judah, Westonbirt var., 56 ; C. Lucifer, Holford's var., 19 ; C. Major Hanbury Carlisle, 106 ; C. Memoria F. M. Ogilvie, Chardwar var., 257 ; C. Memoria J. H. Walker, 74 ; C. Minotaur, var. Radiance, 257 ; C. Montcalm II, 106 ; C. Mrs. Eley, 19 ; C. Mrs. Eley var. W. G. 120 ; C. Mrs. G. V. Llewelyn, 106 ; C. Murillo, 106 ; C. Nephelia, 272 ; C. Nesta, Westonbirt var., 19 ; C. niveum Imperiale, 440 ; C. Onward, 74 ; C. Perseus, Townley Grove var., 257 ; C. President Harding, 106 ; C. Ranleigh, 19 ; C. Renown, 56 ; C. Revelation, 106 ; C. Robert Paterson var. Westminster, 120 ; C. Rob Roy, 257 ; C. Rowland, 257 ; C. Royalist, 19 ; C. Scipio, 257 ; C. Seekon var. Biddy, 120 ; C. Shamus var. Shaun, 19 ; C. Sullum, 361 ; C. Sumurun, 106 ; C. Sunshine, 106 ; C. Thebian, 257 ; C. The God Pan var. Daphnis, 308 ; Cytisus Lord Lambourne, 377 ; Daphne aurantiaca, 376 ; D. retusa, 309 ; Denrobium Discus, 136 ; D. Hesketh Park var., 169 ; D. Leander, 272 ; D. Magda var. magnifica, 308 ; D. Merlin, Bolholt, var. 272 ; D. Merlin var. Brilliant, 308 ; D. Merlin var. Mrs. G. V. Llewelyn, 257 ; D. Merlin var. nobilius, 272 ; D. Merlin var. Rex, 257 ; D. Mora, 257 ; D. plumptonense, Llewelyn's var., 169 ; D. Renown var. Armstrongiae, 152 ; D. tetragonum, 202 ; D. Timsbury Gem var. Redstart, 308 ; Deutzia discolor stellata, 419 ; Dianthus Allwoodii Susan, 377 ; D. Allwoodii var. Ann, 344 ; Dipelta floribunda, 344 ; Erica Tetralix mollis, 419 ; Eritrichium nanum, 309 ; Escallonia Donard Gem, 453 ; Fothergilla major, 344 ; Freesias : Apotheosis, 420 ; Giant White, 420 ; Golden Eagle, 420 ; Grey Dawn, 420 ; Jubilee, 420 ; Orange Tip, 420 ; Orchidea,; 420 ; Treasure, 420 ; Wistaria, 420 ; Yellow Hammer, 420 ; Galanthus plicatus, Warham variety, 152 ; Gaultheria oppositifolia, 419 ; Gentiana pyrenaica, 345 ; Helleborus orientalis Prince Rupert, 185 ; Hippeastrum pratense, 376 ; Hydrangeas : Deutchland, 377 ; H. B. May, 309 ; Hortensia D.B. Crane, 377 ; J. F. McLeod, 309 ; King George, 344 ; Lord Lambourne, 309 ; Mrs. Baardsi, 377 ; Queen Mary, 344 ; Iris hybrida Margot Holmes 419 ; I. Wedgwood, 120 ; Lachenalia Arabia, 420 ; L. Boundii, 420 ; L. Calcutta, 420 ; L. Canada, 420 ; L. Leiden, 420 ; L. Mandalay, 420 ; L. Siam, 420 ; L. Thibet, 420 ; L. Tipperary, 420 ; Laelio-Cattleya General Maude var. Victory, 219 ; L.-C. Hassallii alba, Rosslyn var. 257 ; L.-C. H. T. Pitt, Llewelyn's var., 169 ; L.-C. Santa Claus var. Lord Lambourne, 344 ; L.-C. Schröderae var. Luna, 19 ; L.-C. Schröderae var. Princeps, 19 ; L.-C. Serbia, Llewelyn's var., 169 ; L.-C. Zeno, 257 ; Lewisia rediviva Vancouver var., 376 ; Lilium concolor, Dropmore var., 453 ; Lupinus polyphyllus Countess of March, 377 ; Lycaste brevispatha, 361 ; L. Skinneri var. Hannibal, 257 ; L. Skinneri var. Mrs. Hamilton-Smith, 374 ; Lysichitum camtschatcense, 309 ; Magnolia Nicholsoniana, 376 ; M. salicifolia, 219 ; Meconopsis Baileyi, 419 ; M. grandis, 345 ; Miltonia Beau Brummel var. superbissima, 184 ; M. Bleuana var. Distinction, 361 ; M. Conqueror, 374 ; M. gloriosa superba; 375 ; M. Henry Astley Bell, 361 ; M. Kennie, 375 ; M. Kennie var. Rosalind, 344 ; M. Kennie, Westonbirt var., 419 ; M. Lena, 361 M. Lucia var. Fidelio, 440 ; M. Lucia var. Stamperland, 374 ; M. Lycaena var. Franconia, 452 ; M. Princess Mary, Westonbirt var., 419 ; M. Sanderiana var. Chelsea, 375 ; M. Venus var. Princess Maud, 308 ; M. vexillaria Isabella, 440 ; M. Warrensis, 441; M. Wm. Pitt var. Brilliantissima 375 ; M. Wm. Pitt var. Purple Monarch, 257 ; Myrsine africana, 345 ; Narcissus Dactyl, 326 ; N. Ditty, 326 ; N. Eskimo, 256 ; N. Flava, 326 ; N. Godolphin, 220 ; N. Havelock, 220 ; N. His Excellency, 326 ; N. Holland's Glory, 273 ; N. Hopeful, 326 ; N. Lanarth, 220 ; N. March White 121 ; N. Mayflower, 310 ; N. Mephisto, 273 ; N. Mitylene, 273, 326 ; N. Peggy Briscoe, 326 ; N. Penelewy, 220 ; N. Queen of Ulster, 326 ; N. Silver Rose, 326 ; N. St. Egwin, 273 ; N. Scarlet Perfection, 273 ; N. Simple, 326 ; N. Snowsprite, 326 ; N. Suda, 256 ; N. Therapia, 273 ; N. Tregoose, 220 ; N. Turin, 273 ; N. Venetia, 310 ; Nomocharis sp., 419 ; Odontioda aureum, 308 ; O. Bonar Law, 257 ; O. Brackenhurst, Bronze Queen, 169 ; O. Brewii var. Brunette, 272 ; O. Brewii var. Distinction, 272 ; O. Brew-nobia, 440 ; O. Cardinale var. Dora, 19 ; O. Colinge var. Adrien, 257 ; O. Colinge var. Arminii, 257 ; O. Colinge var. Ruth, 106 ; O. Cornclest var. grandiflora, 272; O. Corregio, 374 ; O. Dovere var. majestica, 255 ; O. Frederick J. Hanbury, 184 ; O. Joiceyi var. Royal George, 136 ; O. Juno, Woodside var., 169 ; O. Latona var. G. V. Llewelyn, 361 ; O. Leeana var. Illustre, 19 ; O. Llewelynii, 440 ; O. Marigold var. Radiata, 308 ; O. Marjorie var. Armeniaca, 19 ; O. Metis, 255 ; O. Nada, Beardwood var., 106 ; O. Olympia var. Magnificent, 272; O. Olympia var. nigrum, 257 ; O. Pittiae var. Empress, 184 ; O. Queen Mary, Beardwood var., 441 ; O. Sensation, 169 ; O. Theresa var. Lilacina, 308 ; O.

S17637

Thyone, 308; O. Titian, 309; O. Venus var. Aphrodite, 309; O. Victory, 308; O. Vikings, 106; Odontoglossum Anzac, Towneley Grove var., 272; O. Ascania Stamperland var., 419; O. Carola var. Mary, 257; O. Clydoma, Beardwood var., 257; O. Corncrake, 361; O. Crispo-Solon var. Perfection, 219; O. Crispo-Solon var. Prince Albert, 136; O. crispum ashlandense, 272; O. c. Duke of Wellington, 440; O. c. var. Albatross, 74; O. c. var. Cedric, 136; O. c. var. G. V. Llewelyn, 440; O. c. Vestey's var., 361; O. c. White Perfection, 308; O. Doreen var. The Prince, 440; O. Doris magnifica, 440; O. Dryad, 136; O. eximium var. Colmanii, 374; O. e. var. Northern Star, 106; O. e. var. Royal Beauty, 106; O. Fabia, Rutherford's var., 440; O. Gorizia var. Purple Emperor, 440; O. harvingtense, Towneley Grove var., 106; O. Iphis, Brockenhurst var., 309; O. James Wood Draper, 308; O. L'Aiglon var. Tracery, 136; O. Margarita, Llewelyn's var., 361; O. Mirum Towneley Grove var., 361; O. Monarch var. Brilliant, 169; O. muralis, Gerrish's var., 255; O. plumptonense var. lilacina, 255; O. plumptonense var. Lilacinum, 308; O. plumptonense var. Senator, 219; O. Prince Imperial, 375; O. Purple Empress, 309; O. Purple Queen, 308; O. Pyramus var. Conyngham 136; O. Queen of the Belgians var. Perfection, 169; O. Red Admiral, Vestey's var., 308; O. St. George var. Albion, 257; O. St. George var. Rubens, 361; O. Serapis, 202; O. Temeraire, 272; O. Trident var. rubrum, 219; O. Vivien, 56; O. West Point Monarch var. coeruleum, 308; Odontonia Corona var. Rajah, 375; O. Joiceyi var. Aleppo, 56; O. Nubia var. Renown, 88; Olearia ramulosa, 309; Paeonia Moutan Hiatt C. Baker, 376; Paeonies, Globe of Light, 453; Orion, 453; Phaius Cooksonii grandiflora, 440; Pitcairnea aphelandraeflora, 376; Primula microdonta var. alpicola, 376; P. ninguida, 309; P. Runnymede Gem, 219; Prunus incisa, 256; P. serrulata Yoshira, 256; Pyrethrum S. Marjorie Robinson, 419; P. Scarlet Glow, 419; Ranunculus asiaticus, Improved Palestine Strain, 344; Rehmannia hybrida alba, 219; Rhododendron Betty, 328; R. carneum, 256; R. cilpense, 185; R. hippophaeoides 219; R. (Azalea) Kurume Kirin, 219; R. Linley, 309; R. Oliver, 309; R. russatum, 328; R. virgatum, 219; Rhodohypoxis Bauri, 376; R. rubella, 376; Roses: Charles P. Kilham, 307; Kersbergen, 377; Saxifraga Coombe White, 219; Sophro-Laelio-Cattleya Anzac, Ashlands var., 272; S.-L.-C. ashlandense, 272; S.-L.-C. Isobella var. perfecta, 56; S.-L.-C. Mikado, 219; Staphylea Coulombieri, 344; S. Coulombieri Hessei, 344; Syringa Lamartine, 309; Tetrantheca thymifolia, 89; Tulips: Bronze Wings, 345; Mars, 345; White Duchess, 377; Viburnum macrocephalum, 377; Viola cornuta Jersey Gem, 377; Vuylstekeara Leda, 120; V. Melba var. atropurpurea, 375; Weinmannia trichosperma, 376; Zephyranthes Rose of Burford, 419.

Certificated Vegetables.—CELERIACS: Giant Ball, 153; Snowball, 153; Savoys: Belleville, 362; Favourite, 362; Late Drumhead, 362; New Year, 362; Ormskirk Late Green, 362; Spinach: Prickly or Winter, 362; Schietvrees, 362; Thick-leaved Round, 362;

Cheiranthus Harpur Crewe, 369
Chelones, 228
Cherry fly in France, the, 60
Cherry Orchard, high price for a, 332, 360
Cherry, Sargent's, 31
Cherry tree, a fine Morello, 451
Cherries: French, 348; Japanese, 424; prohibition of imports from France, 443
Chertsey, gift of land to, 236
Children's gardens fund, 387
Chiswick, gardening lectures at, 156
Chrysanthemum congress in Paris, 225, 424
Chrysanthemum exhibit, a wonderful, 104
Chrysanthemum Louisa Pockett, 96; C. uliginosum, 369
Chrysanthemum, the modern single, 80
Chrysanthemums, 48, 253; 347; border, 160; eelworm disease of, 415; in America, 28; out-door, 176; single, 282; trials of early-flowering, 188, 347
Chyngton estate, 424
Cider testing at Long Ashton, 331
Cigarette machines in London Parks, 140
Cineraria Feltham Beauty, 336
Cissus discolor, 431
Cistus, 7; C. ladaniferus, 29
Citrus fruits at Porlock, 135
Chalmers, Mr. Alexander, 22
Claes, M. Florent, 141
Clark, Mr. Heber, 188
Clianthus puniceus magnificus, 430
Cobaea scandens in a public hall, 173
Coelogynes, 26
Cologne Municipal Gardens, new director of the, 243; retirement of the director at, 75
Colour contrast, 249
Coniferae, the newer, 230, 248
Conifers at Stoke Park, 430
Contracts for the purchase of land, 11
Controller of Horticulture, the, 75
Copenhagen Municipal Gardens, 187
Cordyline australis fruiting in Scotland, 38
Coreopsis auriculta var. superba, 183
Corn, sweet, 72
Coronilla glauca out-of-doors, 51
Corsican horticulture, 434
Cory Cup for the best new hardy plant of 1926, 3
Cottages, the preservation of ancient, 156
Covent Garden in 1827, 22
Covent Garden Market: Post Office concession to, 260
Covent Garden Market Bill: L.C.C. to oppose the, 76; withdrawal of the, 123
Cox, E.H.M. (*Farrer's Last Journey*) 14
Cranesbills, two rockery, 265
Crassula multicava, 46
Creosoting posts, 295
Crinum Powellii, 210
Crisp medal, award of the, 295
Crocus laevigatus, 127
Crocuses at Hampton Court, 207
Crop prospects in the Vale of Evesham, 296
Crown gall and cancer, 284
Cultural memoranda, 17, 73, 264
Culzean Gardens, February rainfall at, 217
Cupressus torulosa, 164
Curtis, Mr. C. H., French honour for, 389
Cuthbertson, Mr. David C., 314
Cydonia cathayensis, 318
Cyclamen rohlfsianum, 48
Cynoglossum Blue Gem, 112
Cypripedium Acomb, 414
Cypripediums, 26; the niveum group of, 246

D

DAFFODIL FLY, THE, 168
Daffodil names, classified list of, 260
Daffodils: at Lanarth, 223; importance of "strain" in commercial varieties of, 145; raising new, 164; the promiscuous production of new, 100
Daffodils King Alfred and Sir Francis Drake, 127, 167
Dahlia Coronata, 439
Dahlia, the, 336
"Dahlia Year Book," 332
Dahlias: at Southport, 443; in public parks, 172
Damping off, to prevent, 297
Daphne retusa, 353; D. rupestris 6
Dead Sea, potash from the, 297
Dean Hole Memorial Medal, award of the, 76
Dendrobiums, 26; evergreen, 431
Denham Demonstration Station, 92
Devil's Dyke, Brighton, sale of, 172
Devon: a plant collector in, 338; orchards, 3
Dianthus squarrosus, 410
Diplandenias, 46
Dischidia Rafflesiana, 156
Dombeya Cayeuxii, 124
Douglas Fir, defoliation of the, 323
Douglasia laevigata, 282
Drought, the spring, 387
Dunstan, Prof., M. J. R., retirement of, 278
Dutch fruits and vegetables, 406
Dutton, Mr. A. F., 260

E

EBBLEWHITE, MR. E. A., PRESENTATION TO, 242
Echium callithyrsum, 444
Economic botany at Kew, 259
Economic plants of the Bay Islands, Honduras, 50, 69, 81, 117, 133, 180, 217, 270, 305, 413
Edinburgh, notes from, 64, 213, 322, 449
Edinburgh Royal Botanic Garden Guild "Journal," 365
Eelworm disease of Chrysanthemums, 415
Elm disease, the Dutch, 133
Elm trees, the importation of, 43
Emulsified oils for the destruction of insect eggs, 54, 72
Endive, 236
Eomecon chionantha, 431
Epidendrums, 26
Epigaea repens, 49
Eranthemum pulchellum, 192
Ercilla volubilis, 318
Erica arborea, 318
Erigeron mucronatus 112
Eriobotrya japonica, 195
Eriostemon buxifolius, 46
Erodium chamaedryoides, 265; E. corsicum, 265
Eryngium alpinum, 428
Erythronium revolutum Pink Beauty, 265
Escallonia rubra pygmae, 96, 164
Eton, a memorial garden at, 425
Eucharis amazonica, 80
Eucryphia pinnatifolia, 51, 123
Euonymus kewensis, 80
Eupatorium Weinmannianum out-of-doors, 7
Euphorbia epithymoides, 428
Exorchordia Wilsonii, 353
Exporting plants to New Zealand, 170, 385

F

FAIRCHILD LECTURE, THE, 366
Farrer's plants at Exbury, 132
Farrer's Threepenny-bit Rose, 147, 166
Federation Horticole Professionnelle Internationale, 23
Fir, defoliation of the Douglas, 323
Fire at Parkhurst Forest, 407
Fittonias, 336
Flatford Mill and Willy Lott's cottage, 22
Florists' flowers, 48, 80, 96, 128, 149, 176, 210, 253, 282, 336, 410
Flower and plant industry in England and Wales, 242
Flower festival in mid-winter, a, 92
Flower garden, 5, 25, 45, 63, 79, 95, 111, 127, 142, 158, 174, 191, 209, 227, 244, 262, 281, 299, 317, 334, 350, 369, 391, 408, 427, 446
"Flowering Plants of South Africa," 241
Flower pictures at the Mansard Gallery, 124
Flower show at Nice, 251
Foerster, Karl (*Das Dahlienbuch*), 100
Forage plant, a new, 355
Foreign correspondence, 54, 183, 440
Foresters, tragic accidents to Scottish, 76
Forestier, M., retirement of, 348
Forestry census, authenticity of, 107
Forestry Commission, changes in the, 172
Forestry degree at Aberdeen University, 173
Forestry in the Scottish Highlands, 388
Forsythia intermedia in flower at Kew Gardens, 91
Forsythias, 247
Frankfurt Palm Garden, 314
Freesia, a new disease of, 118, 166
French National Horticultural Society, centenary of the, 187
Friend, Mr. James, 242
Fragrant flowers, old-fashioned, 372
Frosts, damage by the April, 313, 331, 398
Fruit buds, inducing dormant to break, 358
Fruit competitions for amateurs, 406
Fruit exhibition in Leipzig, 425
Fruit garden, 16, 166, 200, 236, 270; the market, 71, 150, 199, 288, 342, 437
Fruit growing in public open spaces, 407
Fruit growing in the Western Cape Province, 338, 357
Fruit imports, Australian, 424
Fruit, modern methods of marketing, 91
Fruit plantations, a tour of the mid-Kent, 405
Fruit prospects, 270
Fruit register, 37, 55, 71, 118, 151, 236, 271, 288, 358, 439, 451
Fruit survey of Scotland, 139
Fruit trees: on "ringing," 295; pruning, 150; pruning old, 199; rabbits and mice damaging, 17; wall, 16; winter spraying of, 16
Fruits: gas storage of, 443; pruning hardy, 16; sending soft, by post, 406
Fruits under glass, 4, 24, 44, 62, 78, 94, 111, 126, 143, 159, 175, 190, 208, 226, 244, 262, 280, 298, 316, 334, 350, 368, 390, 408, 426, 446
Fungi as an international problem, 77, 119

G

GALTONIA CANDICANS, 128
Gardener injured in a motor accident, 406
"Gardeners' Chronicle" seventy-five years ago, 3, 23, 43, 61, 77, 93, 109, 125, 141, 157, 173, 189, 207, 225, 243, 261, 279, 297, 315, 333, 349, 367, 389, 407, 425, 444
Gardeners' Club, 405
Gardeners, legacies to, 2, 108, 207, 242, 259, 296, 388
Gardeners' Royal Benevolent Institution: 123, 333; Worcester and District Auxiliary of the, 140
Gardenias, 80
Gardening charities, bequests to, 109
Gardening lectures at Chiswick, 156
Gardening, the humanising influence of, 139
Garden notes from south-west Scotland, 84, 267, 322, 356, 429
Garden scheme on behalf of Queen Alexandra's Memorial, 189, 314, 331, 423, 443
Garden, the fertility of the, 59, 91
Gardens: at Olympia, 168; the artistic value of, 43
"Gartenschonheit," 425
Gassner, Prof. Dr. (*Praktische Anleitung Zum Fruhtrieben von Planzen mittels Blausaure*), 101
Genetic Congress in Berlin, 22
Gentians, 143, 237
Gentil, M. Louis, honour for, 261
Georgetown, the Botanic Gardens at, 269
Geranium argenteum, 410
German nursery employee's long service, 333
Gesneras, 113
Geum rivale Guildford variety, 192
Ghent Floralies, 1928, 206
Ghent, the Rosary at, 332
Gibson, J. L. (*Carnations for Amateurs*), 270
"Gladiolus Annual," the, 139
Gladiolus primulinus hybrids, the early history of, 452
Gladiolus, the, 356, 392, 415, 417, 435, 452
Gladioli: 176; Kelway Challenge Trophy and Medal for, 405
Glasgow: Botanic Gardens at, 18; flower show at, 42; new director of the public parks at, 92; Orchids in the public parks at, 315
Glasnevin, notes from, 129, 268, 371
Glasshouses: at the Botanic Gardens, Regent's Park, 278; sunlight ray lamps in, 218
Globularia incanescens, 6; G. majoricensis, 100
Gloriosa, 192
Grampian Mountains, Victoria, Australia, flora of the, 22
Green manuring, 30
Grevilleas, 211
Grey garden, the, 6
Guarantees and warranties, 285
Guava, 81

H

HABERLEA RHODOPENSIS, 265, 283
Hacquetia epipactis, 228
Hall, Sir Daniel, 424
Hamburg Horticultural Union, 332
Hampton Court, Crocuses at, 207
Hanbury, the late Sir Thomas, and La Mortola, 267
Hardwick House, Bury St. Edmunds, 92
Hardy flower border, 47, 80, 96, 113, 128, 193, 228, 264, 282, 352, 369, 428, 445.
Hardy fruit garden, 4, 24, 44, 63, 78, 94, 110, 126, 142, 158, 174, 190, 209, 226, 263, 280, 298, 316, 335, 351, 368, 391, 409, 426, 446
Harrow, Mr. Robert L., 42
Hawksmoor Nature Reserve, 333
Heidelberg public gardens, centenary of, 242
Helichrysum frigidum, 96
Hepaticas, 247
Herbaceous borders, planting, 193
Herbaceous plants, staking, 282
Herbarium specimens, method of preparing, 242
Herb shop, a, 140
Herpolirion Novae-Zelandiae, 65
Heuer, W. (*Praktische Anleitung Zum Fruhtrieben von Planzen mittels Blausaure*), 101
Hindhead, the Golden Valley at, 440
Hippeastrum reticulatum, 46
Hoe, the Hampson shoulder, 221
Hoeing between crops in the vegetable garden, 439
Holford, Sir George, the late, 205
Honey crop, the Scottish, 140
Honours for British horticulturists, 405
Horseradish, 73
Horticultural Club, 21, 42, 107, 223, 329
Horticultural Education Association, 406
Horticultural education in Belgium, 242
Horticultural Journal's jubilee, 2
Horticultural Produce Act, 82
Horticulturists' Easter tour in Holland, 173
Hume, Harold (*The Cultivation of Citrus Fruits*), 233
Hungary, exchange stabilisation in, 61
Hurricane in northern Scotland, effect of the January, 123
Hurry, Dr. J. B., 108
Hutchinsia alpina, 336
Hyde Park, Tulips in, 340; spring flowers in, 301
Hydrangea paniculata grandiflora, 336
Hydrangeas, British seedling, 347, 366, 367

I

IDEAL GARDENS AND PLANT LORE 266, 354, 448.
Ideal Home Exhibition, gardens at the, 168
Impatiens Holstii, 336
Imperial War Graves Commission, 109
Imports of fruits and vegetables from Belgium, 206
Indoor plants, 9, 27, 46, 80, 95, 113, 148, 160, 192, 210, 229, 246, 264, 282, 301, 336,367, 431, 445.
Insecticides, contact, 157
Insects, recent work in France on the parasitic control of, 34
International Botanical Congress, 1930, fifth, 42.
International Committee for Horticultural Congresses, 440
Inula glandulosa, 428; I. Helenium, 96
Inventions, new horticultural, 138, 170, 221, 294, 363
Iris garden, 8, 391, 428
Iris Gagus, 429; I. Margot Holmes, 429; I. orientalis Snow Queen, 8; I. unguicularis, 237; I. Wedgwood, 160
Iris Society: Bulletin of the, 124; outing of the, 348; prize fund of the, 366; the American, 188, 241
Irises: at Kew, 428; Bearded, 365; planting Flag, 392

J

JAMES I AND MULBERRY TREES, 86
Jasminum nudiflorum, 29, 86; J. primulinum, 148; J. revolutum, 129
Java coffee, 424
"Journal of the R.H.S. Gardens Club," 278

K

KALES, 325
Keeble, Sir Frederick, honour for, 259
Kelway Challenge Trophy and Medal for Gladioli, 405
Kelway, Mr. William, 124
"Kew Bulletin," 140
Kew Gardens, 205; Bluebells and Lilac at, 331; economic botany at, 259; Forsythia intermedia in flower at, 91; interesting pictures and plants of, 332; Irises at, 428; Magnolia Campbellii flowering at, 277; notes from, 147, 231; plants of special interest at, 155; Primulas and Rhododendrons at, 171; trees from, for Canberra, 156; visitors to, in 1926, 332, 348
Kinzel, Dr. Wilhelm (*Neue Tabellen zu Frost und Licht als beeinflussende Krafte bei der Samenkeimung*), 396
Kitchen garden, 4, 24, 44, 62, 78, 95, 110, 126, 142, 158, 174, 190, 208, 226, 244, 262, 280, 298, 316, 334, 350, 368, 390, 408, 426, 446
Klosterneuburger (Austria) Horticultural College, 297
Kniphofia Uvaria var. Saundersii, 141

L

LABURNUM ADAMII, 439
Lachenalias, 229; L. Nelsonii, 229
Laelias, 26
Lamb's cottage, 278
La Mortola: plants in flower at, on January 1,1927, 65; rainfall at, 1; the late Sir Thomas Hanbury and, 267
Lanarth, Daffodils at, 223
Land, contracts for purchase of, 11
Land drainage, Royal Commission on, 260
Lange, Willy (*Blumen im Hause*), 53
Lantana, 160
Lathyrus nervosus, 320; tuberosus, 73, 136, 151, 167
Law Notes:—Lakes in pleasure grounds, 441; Potato seed, mixed, 258
Lawns, 187, 271
Lawrence Medal, award of, 3
Leaf-eating insects, 370
Leeds Castle, Kent, sale of, 108
Leeks, 118, 439
Legacies: to gardeners, 2, 108, 207, 242, 259, 296, 388; to a firm's employees, 349
Leipzig, fruit exhibition at, 425
Leucadendron argenteum, 183
Lettuce, 72
Liegnitz, planetarium at, 93
Light, the right of, 49
Lilies, 179; and manure, 302; at Ottawa in 1926, 233; diseases of, 178, 197; hardy, in America, 103; in Scotland in 1926, 253; in 1926, 66; on the Cotswolds, 233
Lilium longiflorum var. sinense, 314, 352; L. regale seedlings, 417; L. Thunbergianum, the hybrid origin of, 216
Liliums from seeds, raising, 352, 435
Lime and soot in the garden, 450
Lime trees at Bourlon Wood, France, 211
Linnaea borealis, 318
Linnean Medal, award of, 295
Liverpool Museum, botanical specimens for, 223
Lobelias, perennial, 300
Lobjoit, Mr. W., retirement of, 75
Lobjoit, Sir William George, 406
Lochot, J. (*Le Chrysantheme*), 53
Loder Rhododendron Cup, award of the, 3
London Squares, 109; Bill for the preservation of, 206
Long Ashton, Cider testing at, 331
Luculia gratissima, 282
Luminous plants, 296
Lupins, garden, 445
Lupinus, 428; L. nootkatensis, 318
Lycaste Skinneri, 26
Lysichitum camtschatcense, 228

M

MACINTYRE, MR. DONALD, 278
McLaren, Mr. John, 2
McLeod, Mr. J. F., presentation to, 141
Magnolia Campbellii flowering at Kew, 277
Maize, effects of nitrogen-fixing bacteria on the growth of, 207
Manchester Parks and Cemeteries Departments Society, 108
Mansard Gallery, flower pictures at the, 124
Manure, uses of artificial, 269
Maples, ornamental, 229
Market Drayton Gardeners, 141
Markets and fairs, 277
Masdevallia ignea, 300
Mason, Mr. H. T., 76
Matthews, Mr. Edward, resignation of, 87
May Fair Hotel, roof garden at the, 224
Meconopsis pseudointegrifolia, 371
Medinilla magnifica, 160
Melilotus species, 104
Melon, a long-keeping, 42, 104
Melons, some good varieties of, 451
Mesembryanthemum, 12, 31, 52, 71, 84, 116, 251, 430; M. uncinatum, 369
Meyer, Herr, memorial to, 425
Microstylis Scottii, 367
Mimulus glutinosus, 210
Mistleto, 85
Montbretias, 176
Moray and Nairn Foresters, 348
Morisia hypogaea, 6
Moth, the Codlin, 439
Mothers' day, flowers for, 315
Moth, the Golden-, 8, 341
Mottet, M. Joseph S., 388
Musa Basjoo fruiting in France, 337
Museum of Economic Botany at Reading, 140
Mustard, Chinese, 360
Myosotis, winter-flowering, 184

N

NATIONAL AURICULA AND PRIMULA SOCIETY, 224
National Playing Fields Association, 172
Naylor, Mr. H., 172
Nehrling, Prof. Arno H., 297
Nepeta Mussinii, 160
Nether Warden, Calanthes at, 148
Newcastle parks, 360
New Zealand, exporting plants to, 170, 385; the flora of, 61
Nice, flower show at, 251; natural rock gardens of, 319
Nitrogen fixation and our food supplies, 33

Nomblot, M. Alfred, honour for, 406
Nomocharis, 98
Northern Gardeners, for, 5, 25, 45, 63, 79, 95, 111, 127, 143, 159, 175, 191, 209, 227, 245, 263, 281, 299, 317, 335, 351, 369, 391, 409, 427, 446
November rainfall in West Dorsetshire, 2
Nuisances, legal, 182
Nursery Notes :—Longfield House Nursery, 306 ; **Primulas at Forest Hill**, 134
Nursery stock, Canadian imports of, 107
Nursery trade in Berlin, 60
Nurseries, Scottish, damaged by storm, 109

O

OAK, A VETERAN, 43
Obituary :—**A**bbiss, Arthur, 74 ; Airdrie, Mrs. D., 170 ; Aldea, Sandu, 275 ; Alderman, Harry, 293 ; Ash, Job, 444 ; **B**arnard, J., 404 ; Bayford, C. A., 90 ; Black, W. S., 275 ; Brotherston, George, 275 ; Burvenich, Octave, 154 ; Butterworth, J. T., 421 ; **C**akebread, J., 19 ; Cockburn, Robert, 203 ; Coomber, Thomas, 39 ; Corry, William Longman, 186 ; Crombie, David, 239 ; **D**ewing, F., 239 ; Dresselhuys, H. C., 57 ; **E**ckert, Conrad, 442 ; Elliot, W. R., 90 ; Etterley, W. H., 170 ; **F**audel-Phillips, Sir Benjamin, 57 ; **G**entilhomme, Léon-Louis, 275 ; Gill, Richard, 203 ; Goericke, Emil, 90 ; Goodacre, Mrs. J. H., 154 ; Guillion, Mme. Louise, 257 ; **H**aseganu, Ion, 203 ; Hayes, Thomas Richard 442 ; Hert, Georges, 74 ; Hillier, Edwin, 39 ; Horton, John, 138 ; Huggins, H. T., 404 ; Hutchinson, William, 362 ; **I**vey, David, 421 ; **J**ones, Henry, 154 ; **K**ing, David, 404 ; Knowles, Wm., 385 ; Kotte, Karl, 275 ; **L**efebvre, Paul, 239 ; **M**acdonald, A., 90 ; McLean, George, 40 ; Main, Thomas, 454 ; Manning, Thomas, 421 ; Miller, W. A., 57 ; Moore, Alfred, 203 ; Moore, G. F., 454 ; Mount, George, 311; Muller-Thurgau, Dr., 138 ; **N**eil, Samuel, 275; Neilson, Daniel, 186 ; Nix, J. A., 346 ; **O**chs, Jakob, 362 ; **P**age-Roberts, Rev. F., 74 ; Paterson, W., 293 ; Petersen, F., 57 ; Pitt, H. T., 221 ; Plumeré, Louis, 40 ; Postle, Arthur, 362 ; Potin, Julien, 170 ; **R**adlkofer, Ludwig, 154 ; Roberts, David, 330 ; Robinson, Mrs. Francis, 138 ; **S**argent, Charles Sprague, 257, 259, 293 ; Saunderson, Joseph, 257 ; Schöne Karl, 257 ; Smith, Matilda, 40 ; **T**aylor, James, 90 ; Thomson, W. P., 170 ; **U**dale, James, 106 ; **V**aupel, Friedrich, 442 ; Vuylsteke, Charles, 122 ; **W**ard, James, 454 ; White, E., 257 ; White, John, 186
Odontoglossum Sylvia M. Aggs, 318
Olympia, gardens at, 168
Oncidiums, 26, 192
Onions, 86, 254, 307 ; maincrop, 217 ; Tree, 182, 237
Onosma albo-roseum, 382
Ontario, an arboretum for, 207
Ophrys apifera, 300
Orange, the Bizzarria, 241
Oranges in pots, 236
Orchards, Devon, 3
Orchid collection, the Stamperland, 172
Orchid houses, 4, 24, 44, 62, 78, 94, 110, 126, 142, 158, 174, 190, 208, 226, 244, 262, 280, 298, 316, 334, 350, 368, 390, 408, 426, 446
Orchid notes and gleanings, 8, 26, 96, 113, 148, 192, 246, 282, 300, 318, 367, 414, 431
Orchid seedlings : and Vita glass, 18 ; thrips on, 18, 96
Orchids : in Glasgow Public Parks, 315 ; new hybrid, 64 ; Scale insects on, 26 ; the Rosslyn, 387 ; the Stamperland, 9 ; useful winter-flowering, 26
Orchis foliosa, 414 ; O.f. O. maculata, 431 ; O. praetermissa under cultivation, 139
Orecome Candollei, 336
Orshoven, M. Hector Van, honour for, 261

P

PAEONIA VEITCHII, 428
Paeony disease research in America, 424
Paeonies, silver cup for, 314, 389
Panax, 113
Pansies and Violas, 210
Paris : Municipal Gardens 348 ; Museum of Natural History, 424 ; Spring show, 41, 260
Park, competitive plans for a German, 206
Parkhurst Forest, fire at, 407
Park Superintendents, London, 92
Parks and gardens, public, 19, 87, 134, 183, 236, 270, 286, 301, 307, 360, 440
Parsnips, 217
Pea, Lord Anson's, 320
Pear, an immune, 424
Pear Tree Cottage Garden, Ewell, Surrey, 245
Pear, Avocada, 81
Pears : Belle Julie, 151 ; Beurré Bosc, 358 ; Charles Ernest, 151 ; Glou Morceau, 55 ; Maréchal de la Cour, 236 ; Marguerite Marillat, 439 ; Verulam, 217, 343
Peas, preserved, 22
Pentas carnea, 9
Perold, A. I. (*A Treatise on Viticulture*), 324
Perennials from seeds, raising, 373
Pests and their control, seasonal, 370, 436
Pettigrew, Mr. W. W., presentation to, 123
Philesia buxifolia, 112
Phlox decussata var. Comtesse de Jarnac, 336 ; P. subulata x P. amoena, 410
Phloxes as bedding plants, 77
Phuopsis stylosa, 336
Phyteuma orbiculare, 181
Phytolacca decandra, 318
Pimpernels, 261
Pineapples, Chinese, 60
Pinus Laricio, 68 ; P. montana var. Mughus forma Slavinii, 147
Planetarium at Liegnitz, 93
Plant collecting expedition in Western British Columbia, proposed R. H. S., 172, 241
Plant collector in Devon, a, 338
Planting, late, 197
Plant lore, ideal gardens and, 266
Plants, new Order on the sale of diseased, 333, 396
Plants : exporting, to New Zealand, 170, 385 ; for large beds, 115 ; for moist places, 65 ; hardiness in, 33, 104 ; in flower at La Mortola, 65
Plants New or Noteworthy :—Farrer's Threepenny-bit Rose, 147 ; **Globularia majoricensis**, 100 ; **Pinus montana var. Mughus forma Slavinii**, 147 ; **Primula Parryi**, 27
Plants, North and Central American in the Sloane Herbarium, 42
Plants : of special interest at Kew, 155 ; of the Bay Islands, Honduras, economic, 50, 69, 81, 117, 133, 180, 217, 270, 305, 413 ; old-fashioned, 242 ; raising new garden, 277 ; should new, be ignored at R.H.S. shows ? 104 ; origin of cultivated, 423 ; under glass, 5, 24, 44, 62, 78, 94, 110, 126, 142, 158, 174, 190, 208, 226, 244, 262, 280, 298, 316, 334, 350, 368, 390, 409, 427, 446
Playing fields, need for more, 387
Plohowitz, Jakob, retirement of, 156
Plum Diamond, 71, 86, 118
Plusia moneta, the Golden-8 Moth, 341
Polyanthus, the old blue, 307
Poinsettias, 210
Portulaca grandiflora, 283
Post Office concession to Covent Garden Market, 260
Posts, creosoting, 295
Potash from the Dead Sea, 297
Potato crops inspected in Scotland in 1926, immune and non-immune, 59
Potato diseases, the problem of, 60
Potato imports, foreign, 92
Potato trials, 109 ; maincrop, 347
Potatos : common scab of, 55 ; experiment with seed, 290 ; (Canary Islands) Importation Order, 1927, 333 ; inspection of growing crops of, in Scotland, 365, 406 ; new varieties of, immune from wart disease, 173 ; seed, 103 ; public taste in, 224 ; virus diseases of, 277
Potentilla fruticosa, 264 ; P. Hopwoodiana, 6
Potentillas, double, 192
Primrose : and its pollination, the, 139, 184 ; the blue, 232, 271, 296
Primroses, double, 47
Primula Giraldiana, 369 : P. Parryi, 27 ; P. pubescens, 96, 336 ; P. rosea, 48, 265 ; P. suffrutescens, 210
Primulas and Rhododendrons at Kew, 171.
Primulas at Forest Hill, 134 ; at Hillside, Reading, 215
Promise and performance, 69, 135
Propagating Antirrhinums from cuttings, 264
Pruning : fruit trees, 150 ; hardy shrubs, 17
Prunus microlepis, 112 ; P. subhirtella var. autumnalis, 29 ; P. yedoensis, 285
Publications received, 23, 93, 109, 125, 141, 173, 189, 207, 225, 243, 261, 279, 297, 333, 349, 367, 389, 407
Pyrola rotundifolia, 210
Pyrus Calleryana, an immune Pear, 424

R

RABBITS AND MICE DAMAGING FRUIT TREES, 17
Ragionieri, Dr. A., 261
Railway Station Gardens, 206
Rainfall at Culzean Gardens, 217 ; at La Mortola, 1 ; at Tirley Garth, Tarporley, in 1926, 93 ; Rainfall in West Dorsetshire, 2
Ranunculus, 80 ; R. amplexicaulis, 300 ; R. gramineus, 410 : R. Lyallii, in New Zealand, 410 ; R. nyssanus, 283, Palestine and Florentine, 392
Raspberry Stem-bud Moth, 452
Rats, the destruction of, with calcium cyanide, 136
Reaping machine, centenary of the invention of the, 424
Regent's Park, spring flowers in, 301
Rhododendron Association, a, 313
Rhododendron argyrophyllum, 264; R. dauricum, 112 ; R. leptothrium, 352 ; R. lutescens, 300 ; R. Mackenzianum, 193 ; R. praecox, 129
Rhododendron Society's schedule, 59
Rhododendrons : flowering at Kew, 259 ; the worth of hybrid, 411
Rhubarb, 342
Rhubarbs Tobolsk and Stott's Monarch, 167
Richardia Elliottiana, 445
Richardia, root rot of, 234
Richmond Hill, 41
Rock gardens : natural, at Nice, 319 ; the massing of plants in, 112
Roof garden at May Fair Hotel, 224
Rose conference, international, 60
Rose, Farrer's Threepenny-bit, 147, 166
Rose garden, 8, 81, 166, 373, 410, 438
Rose trials at Wisley, the, 166
Rosery at Ghent, the, 332
Roses: aphides and mildew on, 373 ; in Canada, 96 ; in Oxfordshire, 8 ; new, in America, 81 ; newer varieties of, 438 ; old-time, 410
Rottlera Forrestii, 371
Roumania, cemetery maintenance in, 349
Royal Horticultural Society, 91 ; plant-collecting expedition, 172 ; scholarships, 108
Rubus Giraldianus, 29
Rudbeckia hirta, 47 ; R. laciniata, 28 ; R. pinnata, 28
Russell, Sir E. J. (*Soil Conditions and Plant Growth*), 171

S

SALAMAN, REDCLIFFE N. (*Potato Varieties*), 21, 41
Sales of diseased plants Order, 333, 396
Salix babylonica, hybrids of, 29 ; S. cinerea var. Medemii, 176 ; S. vitellina pendula, 393
Salvia carduacea, 18 ; S. Greggii, 301 ; S. Harbinger from seed, 228 ; S. Pittieri, 17 ; S. pseudococcinea, 290 ; S. virgata nemorosa, 135
Sampson, Mr. Hugh C., appointment of, 259
Saponaria caespitosa, 445
Sap, the ascent of, 205
Sargent, Charles Sprague, 257, 259, 293
Saskatchewan, a national park for, 348
Saxifraga Burseriana tridentina 181 ; S. Cotyledon icelandica, 18 ; S. florulenta, 28 ; S. granulata, 112 ; S. Irvingii, 228
Schizanthus, pollination of, 452
Schizostylis coccinea Mrs. Hegarty, 80
Schneider, Camillo (*Das Dahlienbuch*), 100
Scholarships : for agricultural workers, 188, 366 ; the R.H.S., 108
Scorpiurus sulcata, 48
Scotland : effect of the January hurricane in northern, 123 ; nurseries damaged by the storm in, 109 ; Sugar Beet development in, 2 ; storm in, 92
Seakale, 289 ; forcing, 360, 416
Scotland, garden notes from southwest, 84, 267, 322, 356, 429
Sedum caeruleum, 47 ; S. spathulifolium, 28
Seed export trade, the South African, 347

Seeds and tubers for exchange at Swansea, 2
Selsdon Woods, 22
Senecio tyrolensis, 352
Seven Sisters Cliffs, Eastbourne, 156
Shrewsbury Floral Fête, 224
Shrubs: for large lawn beds, 148; pruning hardy, 17; some interesting, at Cannizaro, 411;
Silene Asterias grandiflora, 47; S. Hookeri, 428, 445
Singapore Botanic Gardens, 205
Sisyrinchium grandiflorum, 282
Site-planning competition, French, 366
Skirret, 236
Slade, Sir James B., 424
Sloane Herbarium, 42
Smith's, Capt., Library and Herbarium, 140
Snell Memorial Medal, award of the, 388
Snowdrops, seedling, 210, 272
Societies:—**A**ssociation of Economic Biologists, 138; **Banffshire** Horticultural, 90; Birmingham and Midland Gardeners', 154, 186, 239; British Carnation, 105, 239, 291, 361; British Florists' Federation, 89; British Mycological, 272; Bucarest Flower show, 54; **C**ardiff and District Gardeners', 74, 154, 201; **D**undee Horticultural, 346; **F**almouth Spring show, 291; **G**ardeners' Royal Benevolent Institution, 76, 105, 186; General Bulb Growers of Haarlem, 311; German Horticultural, 346; Glasgow and West of Scotland Horticultural, 104, 138, 239, 344; Glasgow Spring Show, 201; Guildford and District Gardeners, 186, 220, 362, 404, 441; Guildford Chrysanthemum, 136; **I**nstow Flower show, 292; **I**pswich and District Gardeners', 239; Iris, 362, 418; **K**ilmarnock Spring show, 291; Kingston and Surbiton Chrysanthemum, 154; **L**eicestershire Agricultural, 454; Lincolnshire Daffodil, 310; London Daffodil Show, 273; **M**anchester and North of England Orchid, 19, 106, 136, 169, 257, 272, 308, 361, 440; Marlow and District Chrysanthemum, 104; Midland Daffodil, 326; Moray and Nairn Foresters', 291; Moray Field Club, 346; **N**ational Auricula and Primula, 343; National Chrysanthemum, 122; National Rose, 88, 307; National Tulip, 361; Norfolk and Norwich Horticultural, 311; **O**rchid Club, 74, 136, 202; **P**aisley Florists', 290; **R**eading and District Gardeners', 74, 104, 153, 201, 239, 308; Rhododendron, 327; Royal Caledonian Horticultural, 19, 87, 154, 203, 291, 362; Royal Gardeners' Orphan Fund, 137, 206, 384; Royal Horticultural and Arboricultural of Ireland, 19; Royal Horticultural, 56, 88, 120, 152, 184, 219, 255, 273, 309, 344, 362, 374, 398, 419, 452; Royal Horticultural of Ireland, 290; Royal Scottish Arboricultural, 39, 153, 420; **S**ociété Nationale d'Horticulture de France, 401; Spalding Bulb Growers', 292; **T**amar Valley Commercial show, 292; Truro Spring Flower, 346; **U**nited Horticultural Benefit and Provident, 74, 154, 202, 292, 362, 454; **V**ale of Evesham Asparagus Growers', 201, 404; **W**akefield and North of England Tulip, 418; Watford Horticultural, 137; Western Commercial show 202.
Soil acidity, the control of, by aluminium sulphate, 340
Soil physics, 114
Soldanella alpina, 247
Solly, V. N. (*Gardens for Town and Suburb*), 182
Sophora tetraptera, 81
Sorrel, 17
Soursop and Rose Apple, 81
South Downs, the preservation of the, 93
Southport Flower Show, 366; Dahlias at, 443
Southport, open-air bathing lake at, 286
Soya Beans joined in pairs, 103
Spartium junceum, 29
Spiraea bullata, 48; S. Filipendula flore pleno, 428
Spraying machinery in England, a short history of, 13
Spring, a late, 223
Spring flowers in Regent's Park and Hyde Park, 301
Stachys corsica, 265; S. tuberifera, 200
Staking herbaceous plants, 282
Stapf, Dr. Otto, awarded the Linnean Medal, 295
Stefanoff, B. (*Monografia na roda Colchicum*), 304
Stellenbosch Botanic Gardens, 61
Stiles, 214
Stocks, 247; East Lothian, 112
Stokesia cyanea purpurea, 113
Stoke Park, Conifers at, 430
Strawberry plants: deterioration of, 358, 387, 398, 417, 440; inspection and certification of, 332
Strawberries, cultivation of, 405
Strobilanthes Dyerianus, 264
Stuttgart, new public park at, 332
Sugar, 172; resources of the British Empire, 60
Sugar Beet: development of, in Scotland, 2; in Yorkshire, 42; Scottish, crop returns of, 76; the cultivation of, 75; the culture and manuring of, 23
Sugar estate, a day on a, 412
Sulphate of ammonia and bowling greens, 436
Sunlight-ray lamps in glasshouses, 218, 254
Sweet Pea exhibition in Brussels, 261
Sweet Peas, 80, 149
Sycopsis sinensis, 300
Synthyris reniformis, 211
Syringa Lamartine, 296
Syringodea pulchella, 79

T

TAYLOR, MR. H. V., 92
Temperate House, Kew, the, 307
Tennyson, in memory of, 157
Tithe rent charge in 1926, amount of the, 260
Thurgood, Mr. F. W., 156
Tigridias, 228
Tints, autumn, 73
Tokyo, interesting plants at, 177
Tomato Essex Wonder, 306
Trade marks, the latest, 138, 170, 294, 363
Trade notes, 19, 58, 90, 170, 222, 293, 385, 421
Transport of flowers by air, 61
Trees and shrubs, 7, 29, 51, 81, 112, 128, 148, 164, 176, 195, 211, 229, 247, 264, 300, 318, 352, 393, 430, 447
Trees: to commemorate William Curtis, 140; to plant in May, 221
Trenching, value of deep, 17, 73, 119, 135, 151, 168, 183, 200, 237, 307, 451
Trespass by cattle, 76
Trifolium uniflorum, 300
Trillium sessile, 300
Tropaeolum tuberosum, 300, 360, 417
Tsuga, a new, 140
Tulips: a plea for new early, 30; in Hyde Park, 188, 340; in the Royal Parks, 296

U

ULTRA-VIOLET LIGHT AND HORTICULTURE, 52, 452

V

VALE OF EVESHAM, CROP PROSPECTS IN THE, 296
Vanda coerulea, 26
Vegetable alkaloids, 366
Vegetable garden, 17, 38, 55, 72, 86, 103, 118, 135, 151, 167, 199, 217, 236, 254, 271, 289, 306, 325, 342, 397, 416, 439, 450
Vegetable, salad and fruit, a new, 325
Vegetables: export duty on French 278; some uncommon, worth growing, 271, 289, 306; varieties of, 38
Veitch Memorial Medal awards, 2
Veratrum, 282
Verbena venosa, 96, 128
Veronica gentianoides, 392; V. Hulkeana, 430; V. longifolia subsessilis, 113
Viburnum Carlesii, aphis on, 325; V. fragrans, 135, 195; V. grandiflorum, 129
Victoria medallists, new, 3
Vienna, International Horticultural Conference in, 77, 172
Vilmorin establishments, the, 232
Vilmorin family, the, 214
Vilmorin-Andrieux et Cie (*Les Différentes Cultures du Chrysanthème*), 286
Vines, the utility of pot, 102
Vineyard at Bury St. Edmunds, the old, 140
Viola and Pansy Society for the south of England, a, 124
Violas, a revision of, 212, 248, 283, 356, 393, 414
Vita glass, 188, 218, 237, 314; for Orchid seedlings, 18; growth of plants under, 452

W

WALLACE, SIR MATTHEW, AWARDED THE SNELL MEMORIAL MEDAL, 388
Wallflower: Early Wonder, 149; double, 128
Walnut leaf extract as an insecticide, 438
Ward, Capt. F. Kingdon, 107; ninth expedition in Asia, 10, 130, 162, 194, 250, 303, 394, 432
Watercress, 440; from a hot-bed, 366
Watt, Sir James, 60
Weather: in the north, 332; one hundred years ago, 296
Wedding, a horticultural, 139
Weeds, 296
Well, Mr. T., 444
Welsh garden, notes from a, 83, 396
White and green fly under glass, 436
White fly, fumigants for, 119; under glass, 370
White Medal of Honour, award of the U.S.A., 206
White, Mr. J. T., awarded the Barr Memorial Daffodil Cup, 260
Wild garden, 49
Williamson, Mr. C. C., awarded the Dean Hole Memorial Medal, 76
"Willett" Memorial, 43, 109
Wilson Memorial prize, 388
Wisley Gardens: developments at, 101; notes from, 64, 163, 213, 323, 370 443,; Rose trials at, 166; trials at, 156
Woodland garden, 112
Worms, rare garden, 36
Worshipful Company of Gardeners, 242

Y

YELD, MR. GEORGE, 348

Z

ZOOLOGICAL PARK, A NEW, 172

LIST OF ILLUSTRATIONS.

A

Alpine house in the R.H.S. Gardens, Wisley, the new 214
Anemone potentilloides, 371
Angus, Mr. George, portrait of, 332
Apple Crawley Beauty, a tree of, 358
Apple Hoary Morning, 21
Apple Rivers' Early Peach in flower, 359
Asperula suberosa, 47
Arctostaphylos Manzanita, 212
Aster alpinus var. Shirley, 393
Asystasia bella, 54
Auricula Duchess of York, 261
Azalea Glory of Littleworth, 29
Azalea, leaf scorch of, 286, 287

B

Bamboo, the giant, in the Peradeniya Gardens, Ceylon, 266
Barker, Mr. J. T. portrait of, 4
Besant, Mr. W., portrait of, 140
Billardiera longiflora, 7
Blackburn, Mr. Arthur, portrait of, 224
Black Currant gall mite, 109, 110, 111
Bole of Japanese Larch showing protruding roots, 230
Burrageara Windsor, 319

C

Caladenia filamentosa, 113
Carnation, leaf-rot of the, 196, 197, 216
Carnations: Mrs. A. J. Cobb, 249; Sweet Anne Page, 161
Cattleya Warscewiczii var. alba, 25
Celeriacs Close Planting and Giant Prague, 87
Cercis racemosa, 447
Chalmers, Mr. A., portrait of, 22
Chelsea, exhibition, 1927, plan of, 361; exhibits at the, 374, 375, 377, 378, 380, 381, 382, 399, 400, 439, 441
Cherry, Sargent's, in the mountain forest, Japan, 31
Cherry tree, a large Morello, 451
Chrysanthemum plants affected with eelworm disease, 415
Chrysanthemums: Capt. Cook, 23; Ruddigore, 3; Mrs. J. Pearson and White Boy, a bed of, 159
Cineraria Feltham Beauty, 335
Clark, Mr. Heber, portrait of, 188
Cobaea scandens on the roof of the Alexandra Hall, Weymouth, 173
Colchicum croaticum, 127
Conophytum Comptonii, 32; C. Marlothii, 52; C. Meyeri, 53; C. praeparvum, 70
Coutts, Mr. John, portrait of, 5
Crockford, Mr. R. H., portrait of, 4
Cup presented by Mr. G. Loder to New Zealand, 63
Cuthbertson, Mr. David C., portrait of, 314
Cymbidium Flamingo Memoria Sir George Holford, 191; C. Pauwelsii, Ankersmit's variety. 263
Cypripedium Chardwar var. Perfection, 61; C. Mrs. Eley var. W. G., 125; C. nitens Leeanum var. Becktoniae, 83

D

Dahlias in Regent's Park, a border of, 179
"Daily Mail" Gold Cup for a fragrant Carnation, 238
Daphne aurantiaca, 389; D. retusa, 353
Dendroclamus giganteus, 266
Dendrobium Renown var. Armstrongiae, 157
Dutton, Mr. A. F., portrait of, 260

E

Echium callithyrsum, 445
Elm, transverse section of a trunk of a diseased, 133
Eucryphia pinnatifolia, 51
Euryale ferox in the Botanic Gardens, Tokyo, 177

F

Friend, Mr. James, 242
Fruit, drying ground for, in South Africa, 357
Fruit-growing in the Western Cape Province, 338, 339, 357

G

Galanthus Magnet in the Glasnevin Botanic Gardens, 128
Gentiana Purdomii, 143
Gill, Richard, portrait of the late, 203
Grape Fruits shown by Cecil Hanbury, Esq., 117

H

Haberlea rhodopensis, Stormonth's var., 281; H. r. var. virginalis, 283
Harrison, Mr. A. T., portrait of, 5
Harrow for bowling greens, 437
Harrow, Mr. R. L., portrait of, 43
Herpolirion Novae-Zelandiae, 65
Hesperis matronalis plena in Hyde Park, a bed of, 115
Hurry, Dr. J. B., portrait of, 108
Hydrangea H. B. May, 317
Hydrangea seedlings, one-year-old, 367, 368

I

Insectarium at Mentone, the, 34
Iris Akbar, 407; I. Gagus, 429
Italian collections of parasites of the European Corn borer, a group of, 34
Italian Garden at the Ideal Home Exhibition, 237

J

Jordan, Mr. F., Portrait of, 4

K

Kelway, Mr. Wm., portrait of, 124
Kelway Cup and Medal for Gladioli, 417
Kniphofia Uvaria var. Saundersii at the Royal Gardens, Kew, 147

L

Lachenalia Nelsonii at Woburn Place, Addlestone, 229
Larvae, a consignment of parasitised, 35
Lathyrus nervosus, 320
Lettuces between Celery trenches, 167
Lilium longiflorum eximium as a field crop in Bermuda, 67; L. ochraceum, 66; L. philippinense formosanum, 176; L. tenuifolium, 68
Lime trees of Bourlon Wood, France, 208, 209, 211
Lithops bella, 85; L. Mundtii, 85;
Lobjoit, Sir William, portrait of, 406

M

MacIntyre, Mr. Donald, portrait of, 278
Markham, Mr. H., portrait of, 4
Mason, Mr. H. T., portrait of, 76
McLaren, Mr. J., portrait of, 2
Meconopsis Baileyi, 449; M. pseudo-integrifolia, 369
Mentocalyx Muiri, 252
Moth, the Golden, 8, 341
Mottet, Mons. J. S., portrait of, 388
Mount, Mr. George, portrait of the late, 296
Muiria Hortenseae, 116
Musa Basjoo fruiting at Verrieres, 337

N

Narcissus Golden Spur, 145; N. Hopeful, 326; N. Papyrus, 301; N. Tazetta, 176; N. Telemonius plenus, 144; N. Tregoose, 227
Naylor, Mr. H., portrait of, 172

O

Oak, an old, at Brocket Hall, 43
Odontioda Frederick J. Hanbury, 189; O. Titian, 321
Odontoglossum Imperator, 374; O. Muralis Gerrish's var., 279
Orange, the Bizzarria, 243
Orchids at Tollcross Park, Glasgow, 315
Orchis foliosa, 431

P

Paeonia Veitchii, 425
Paris Show, views of the, 401, 403
Pateman, Mr. T., portrait of, 5
Pea, Lord Anson's: (Lathyrus nervosus), 320
Pear, the Avocada, 81
Pear Tree Cottage Garden, Ewell, Surrey, 245
Phlox Mrs. M. van Hoboken in Hyde Park, 77
Pinus montana Mughus var. Slavinii, 146
Plum Diamond, 71
Primula microdonta alpicola, 377; P. Parryi, 27
Primulas at Hillside, Reading, 213 215
Prunus sachalinensis in Japan, 30; P. yedoensis, 285

R

Rhododendron argyrophyllum, 267; R. leptothrium, 355; R. Loderi var. King George, 411. R. Mackenzianum, 193; R. russatum, 333; R. virgatum. 225
Richardia, root rot of, 234, 235
Rimaria microsperma, 85
Rose garden at Rose Cottage, Kidlington, Oxfordshire, 8
Roses: Charles P. Kilham, 297; Golden Salmon, 373; Lady Godiva, at Rose Cottage, Kidlington, Oxfordshire, 9
Rose, the "Threepenny-bit," 141
Rottlera Forrestii, 371

S

Salix cinerea var. Medemii, 175
Saxifraga Burseriana tridentina, seedlings of, 181
Scorpiurus sulcata, 49
Seakale Sutton's Ivory White, 289
Sedum bellum in the Glasnevin Botanic Gardens, 268
Silver Work of Art presented to the Aalsmeer Growers by the R.H.S., 391
Slade, Sir James B., portrait of, 424
Snowdrops at Wick House, Brislington, Bristol, 207
Soldanella alpina, 247
Sophro-Laelio-Cattleya Mikado, 231
Spraying apparatus, types of, 13, 14, 15
Stachys corsica, 265
Staphylea Coulombieri, 349
Sugar plantation, scenes on a, 412 413
Syringodea pulchella, 79

T

Thomson, W. P., portrait of the late, 186
Tollcross Park, Glasgow, Orchids at, 315
Trifolium uniflorum, 299
Thurgood, Mr. F. W., portrait of, 156
Tulip Bronze Wings, 351

V

Viburnum grandiflorum in the Glasnevin Botanic Gardens, 129
Vilmorin, Mme. Philippe L. de, portrait of, 206

W

Wallflower Early Wonder, 149
Ward's, Mr. F. Kingdon, ninth expedition in Asia, views of, 10, 11, 12, 130, 131, 162, 163, 194, 195, 250, 302, 303, 304, 394, 395, 432, 433, 434
Watt, Sir James, portrait of, 60
Wells, Mr. Thomas, portrait of, 444
Weinmannia trichosperma, 409
Whitehead, Sir Henry, portrait of, 366

Y

Yeld, Mr. George, portrait of, 348

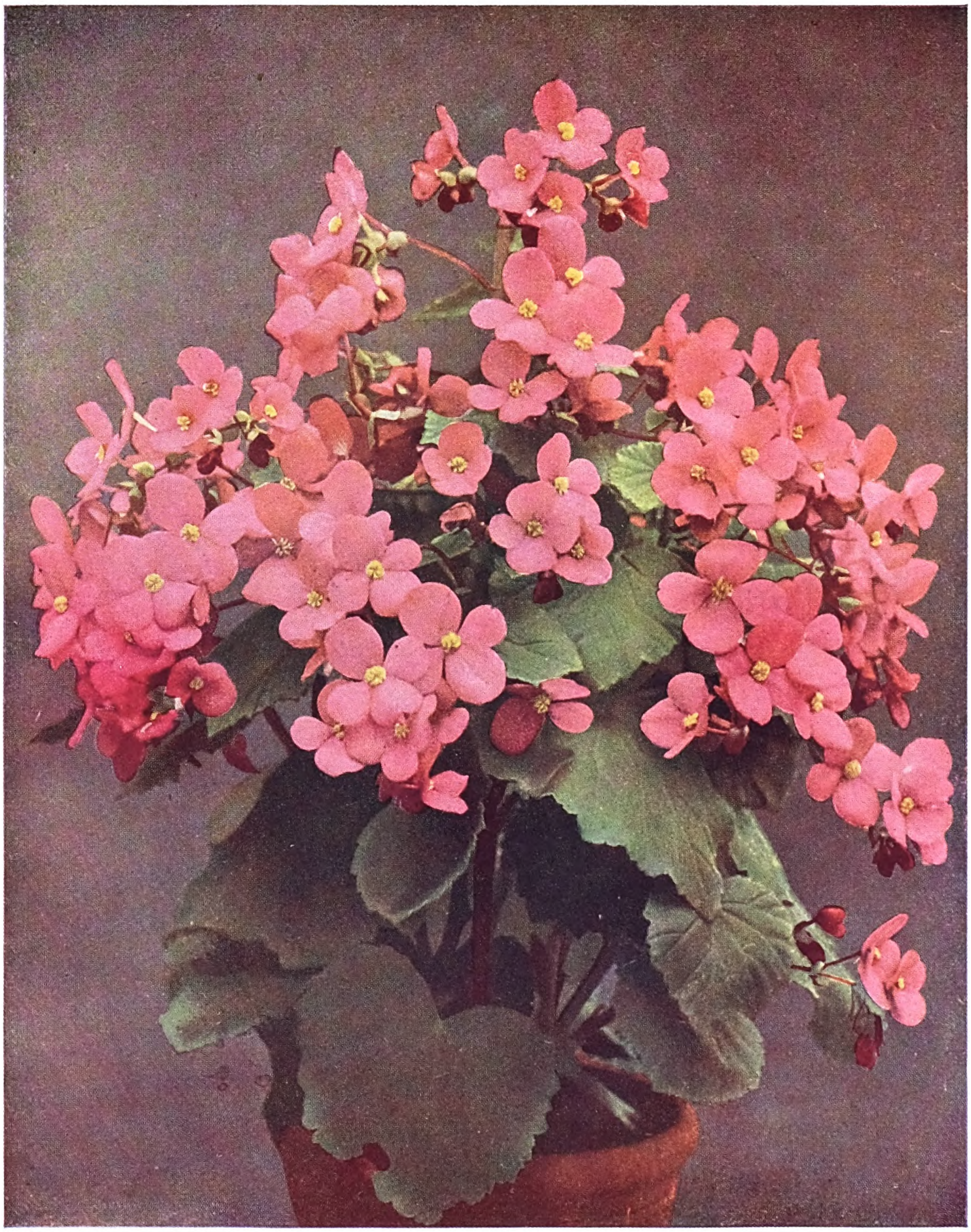
SUPPLEMENTARY ILLUSTRATIONS.

Abies pectinata at Stanage Park (May 21)
Aesculus californica in Stanage Park (April 23)
Cupressus torulosa in Stanage Park (March 5)
Cydonia cathayensis, fruits of (May 7)
Eucryphia pinnatifolia (February 19)
Municipal Boulevard Garden, Copenhagen (March 19)
Pinus Laricio var. Pallasiana growing in Stanage Park (Jan. 22)
Ranunculus Lyallii in New Zealand (June 11)
Rhododendron sphaeranthum (June 25)

Coloured Plates.

Begonia La Patrie (January 1)
Bertolonia Mme. A. Bleu (April 9)

Supplement to The GARDENERS' CHRONICLE V.81-No 2033-Jan 1, 1927



BEGONIA LA PATRIE

THE
Gardeners' Chronicle
No. 2088.—SATURDAY, JANUARY 1, 1927.

CONTENTS.

Apples, biennial cropping of 17
Books, notices of—
  Farrer's Last Journey 14
Bowling greens, the management of ... 18
Bracken, diseases of... 2
Celery, failure with ... 17
Cory Cup, award of the 3
Cultural memoranda—
  Pruning hardy shrubs 17
Fruit garden—
  Pruning hardy fruits 16
  Wall fruit trees ... 16
  Winter spraying ... 16
"Gardeners' Chronicle" seventy-five years ago 3
Glasgow Botanic Gardens 18
Indoor Plants—
  Begonia La Patrie... 9
  Pentas carnea ... 9
  Winter-flowering Begonias ... 9
Iris garden—
  Iris orientalis Snow Queen 8
Land, contracts for the purchase of... ... 11
Lawrence Medal, the... 3
Loder Rhododendron Cup, award of the... 3
McLaren, Mr. J. ... 2
Mesembryanthemum... 12
Obituary—
  Cakebread, J. ... 19
Orchid notes and gleanings—
  Deciduous Calanthes 8
  The Stamperland Orchids 9
Parks and gardens, public... 19
Plants, forcing, by carbon dioxide ... 1
Rabbits and mice damaging fruit trees ... 17
Rose garden—
  Roses in Oxfordshire 8
Salvia carduacea ... 18
Salvia Pitteri... ... 17
Saxifraga Cotyledon icelandica 18
Seeds and tubers for exchange at Swansea 2
Societies—
  Manchester and North of England Orchid 19
  Royal Caledonian... 19
  Royal Horticultural and Arboricultural of Ireland 19
Spraying machinery in England, a short history of 13
Sugar Beet in Scotland 2
Trees and shrubs—
  Billardiera longiflora 7
  Cistus 7
  Eupatorium Weinmannianum out-of-doors 7
Vegetable garden—
  Jerusalem Artichoke 17
  Sorrel 17
Veitch Memorial Medal awards 2
Victoria Medallists, new 3
Vita glass for Orchid seedlings 18
Ward's, Mr. F. Kingdon, ninth expedition in Asia 10
Week's work, the ... 4

ILLUSTRATIONS.

Barker, Mr. T. J., portrait of 4
Billardiera longiflora 7
Coutts, Mr. John, portrait of 5
Chrysanthemum Ruddigore 3
Crockford, Mr. R. H., portrait of 4
Harrison, Mr. A. T., portrait of... 5
Jordan, Mr. F., portrait of 4
Markham, Mr. H., portrait of 4
McLaren, Mr. J., portrait of 2
Pateman, Mr. T., portrait of 5
Rose Garden at Rose Cottage, Kidlington, Oxfordshire 8
Rose Lady Godiva at Rose Cottage, Kidlington, Oxfordshire 9
Spraying apparatus, types of 13, 14, 15
Ward's, Mr. F. Kingdon, ninth expedition in Asia, views of 10, 11, 12

COLOURED SUPPLEMENT PLATE.

Begonia La Patrie.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.1.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, December 29, 10 a.m. Bar. 30.2. Temp. 46°. Weather, Sunny.

Forcing Plants by Carbon Dioxide.

THE interesting investigation into the effects produced on crops by increasing the amount of carbon dioxode in the atmosphere in which the plants are growing, which has now been in progress at the Experimental Station, Cheshunt, Hertfordshire, has been brought a long step nearer successful completion.* The earlier work on this subject carried out at the station was, as has already been outlined in this Journal (August 23, 1924) of a preliminary nature. Since that time methods have been devised whereby plants, grown on an experimental scale, may be subjected for several hours of the day to an atmosphere artificially enriched by known quantities of carbon dioxide. Needless to say, so illusive a substance as carbon dioxide, even when discharged in large quantities into a glasshouse, refuses to maintain its concentration. It begins to escape in one way or another so that if a high concentration is to be maintained, even for a few hours, supplies of the gas must be forced into the house at intervals. In spite of the rapidity at which the initial concentration falls, these means suffice to produce an atmosphere containing a far larger quantity of CO_2 than occurs in ordinary air. Hence, it has become possible to ascertain by actual cultivation whether these larger quantities of the gas lead to increased crop production. Theoretically, they ought to do so. Plants are avid of carbon dioxide. From it all their carbohydrates—sugar, starch, etc., are derived. Yet the natural atmosphere contains only four or five parts in ten thousand. Surely, therefore, plants which possess in the stomata of their leaves a most efficient apparatus for absorbing carbon dioxide, should, if they had access to larger supplies, grow more and produce more fruit. Those who are most suspicious of *a priori* arguments will be the most pleased to learn that in this case their suspicions are dissipated by the experimental facts. Thus the authors show that Tomatos which received during two hours of each day a greatly increased ration of carbon dioxide, six per cent., as against the normal four parts in ten thousand, produced no less that twenty-five per cent. more fruit in consequence of the use of this gaseous fertilizer. Nor is there any need apparently to start gassing the plants too soon. As tiny seedlings they do not respond to the treatment. But when the enrichment of atmospheric carbon dioxide begins about three weeks after sowing, the Tomato responds by producing twenty-five per cent. more fruit, and the Cucumber by yielding sixteen per cent. more. Monthly records of the crop produced show, moreover, the very curious and obliging fact that the plant responds most at those seasons when its market price is highest. From May and June, the yield from the gassed plants is markedly higher than is that from plants cultivated normally. In July and August, when our thoughts are turned away from the Tomato and directed toward the hope of Strawberries and Plums, the plants, tempted by copious supplies of carbon dioxide, produce few, if any more, fruits as a consequence of the temptation; but they fall to it again in September, when the market is prepared again to pay the growers well for their pains. But although the experimental stage of this interesting investigation has apparently been successfully passed, the test on a commercial scale has yet to be made. The investigators at Cheshunt are finding it extremely difficult to get a large quantity of carbon dioxide into a commercial house and to keep it there. All manner of ingenious methods have been tried, but so far, without success. Nevertheless, there can be no doubt, but that having got so far and so satisfactorily with the experiment, they will devise means to overcome this difficulty. If and when the technical difficulty of supply can be overcome there will be a large field for further research. Thus there is ground for believing that stomata are early risers. It is said that they begin to open before sunrise, are fully opened in the early morning, and close in the early afternoon, before sunset. If that be so, indeed, it may prove that the best time to give them the beneficent gassing would be in the early morning. No less interesting will be the investigation of the maximum growth which is induced when carbon dioxide is lavished upon the plants. There are indications, however, that what the plant may gain on the swings it may lose on the roundabouts—in other words, that a high concentration of carbon dioxide may, whilst benefiting assimilation by the leaves, depress the activity of the roots. For the authors point out that in some cases the plants pampered with excess of carbon dioxide left behind them in the soil a heavy crop of the fungus Colletotrichum atramentarium which promptly attacked the subsequent Tomato crop. These are the risks which must be envisaged by those who undertake to improve on Nature. Nor need such risks deter the experimenter; for if they are found actually to occur, he will have but found another problem on which to exercise his ingenuity.

The New Year.—As the date of the present issue falls on New Year's Day, the Proprietors and Staff of *The Gardeners' Chronicle* take advantage of this opportunity to wish their readers, advertisers and contributors the heartiest of good wishes for a Happy and Prosperous New Year.

Our Almanac.—The usual *Gardeners' Chronicle* Almanac, giving a list of exhibitions, meetings, annual outings and other events of interest to horticulturists in 1927 will be included with our issue for January 8. Readers will greatly oblige if they will send dates of shows, meetings, etc., fixed for 1927, at their earliest opportunity, in order that the Almanac may be made as complete as possible. As there may be a few secretaries of societies who do not take *The Gardeners' Chronicle* we shall be greatly obliged if our readers will make known to them the fact that we are publishing this list of events.

Our Supplement Plate.—With the present issue, we present our readers with a Coloured Supplement Plate representing Begonia La Patrie, a hybrid raised by the firm of Messrs. V. Lemoine and Sons, of Nancy, France. On the authority of Mr. J. Coutts, Assistant Curator, Royal Gardens, Kew (see p. 9), we learn that since this Supplement was prepared, Begonia La Patrie appears to have been lost to cultivation in this country; we hope this is not so, and that the present references to such a beautiful plant may be the means of restoring it to its rightful place among winter-flowering subjects.

National Chrysanthemum Society's Floral Committee.—The N.C.S. Floral Committee will meet at the Royal Horticultural Society's Hall on Monday, January 10, at 3.15 p.m., to consider the merits of any new late-flowering Chrysanthemums that may be submitted.

Rainfall at La Mortola.—From Mr. Cecil Hanbury's famous gardens at La Mortola, Ventimiglia, Italy, Mr. S. W. McLeod Braggins writes: "I expect the note in your issue of December 11, regarding November rainfall at Mill Hill—four-and three-quarter inches—is meant to imply unfavourable conditions, but here, in 'Sunny Italy,' our rainfall record for November was 22¾ inches, of which 6·7 inches fell on November 4, during twenty-four hours; add to this five inches for the last week of October and the figures show 27¾ inches in thirty-seven days, and all this after 118 days of drought and continuous sunshine. As you published my account of 13° of frost on January 13 last, perhaps a note on the above record may help to dispel the illusion that the Riviera climate is entirely ideal for gardening. On July 6, during our dry, resting season, two inches of rain fell in three hours, causing some superficial damage, and many plants started into growth only to be checked by the long drought. Roses, in particular, have suffered. Owing to the recent rains and hurricanes, great Olive trees have been blown down, and in many parts locally, the terraces (stone walls) have given way.

---

*Carbon dioxide in relation to Glass House crops. III. The effect of enriched atmospheres on Tomatos and Cucumbers, by C. Owen T. Snell and P. H. Williams. *Annals of Applied Biology*, November, 1926.

Will the New Year visitor think of all this when seeing Primulas, Roses, Fuchsias, Narcissi, Aloes, Tecomarias, Bignonias, Ageratum, Linum, Callas, Lavandula, Montanoa, etc., in flower here? Perhaps; but if it happens to be a sunny day I shall hear again: 'Oh! but you have such a delightful climate, anything will grow at La Mortola.'"

Sugar Beet Development in Scotland.—Under the auspices of the National Farmers' Union, a conference of the Executives of East, Mid and West Lothian, Roxburgh and Berwickshire branches was held on Wednesday, the 22nd ult. to consider the question of encouraging Sugar Beet cultivation in the southern areas of Scotland. Mr. David Gow, Colinton, who presided, favoured the scheme on the ground that those who had grown the Sugar Beet crop had found it a profitable one, and in the present condition of arable farming it was up to them to increase the acreage and induce the people who were interested to provide a factory south of the Forth. At present the Cupar factory was capable of dealing with the crop from 6,000 acres, but the machinery could be extended to deal with the output of 11,000 acres. He did not think there would be much difficulty in inducing members to cultivate a larger acreage because everyone who had grown a crop was satisfied with the result, and in their own interests he considered it would be quite a profitable proposition. He submitted a motion urging the members to increase their crops of Sugar Beet in order to hasten the time when it might be possible to approach the financial groups to proceed with the erection of a central factory south of the Forth. Mr. J. R. Dale, Seacliffe, thought it was unnecessary to do any propaganda work to get Sugar Beet grown; all they had to do was to let farmers know what results growers had obtained and they would be glad to grow Sugar Beet. Mr. C. H. Beveridge, Livingstone Towers, mentioned that a large proportion of the Beet pulp at Cupar was going to the United States. Mr. Thomas Elder, Haddington, expressed gratitude for the subsidy as it showed what the State could do to help agriculture at the present time, and so long as the subsidy lasted there was no doubt whatever that they could grow Sugar Beet to advantage in Scotland. After further discussion, the motion was adopted unanimously, and it was also resolved to ask the Lothian growers to furnish information from their experience as to the best methods of cultivation, including manurial treatment.

Disease of the Bracken.—At a recent meeting of the Scottish Chamber of Agriculture, held at Glasgow, an important announcement was made regarding the discovery of a disease of the Bracken in Ayrshire. A discussion on the subject of this disease was initiated by Mr. Norman Constable, Bute Estate Office, Rothesay, who urged the Chamber to approach the Board of Agriculture with a view to helping the hill farmer whose land was infested with Bracken. Mr. John McNeilage, who seconded, remarked that Bracken was good for nothing, not even for game or for vermin, and he suggested that grants should be offered on the same basis as drainage. Mr. McGill, Ayr, said that a farmer at Knoweside, Ayrshire, had discovered a disease of the Bracken which had been reported to the Board of Agriculture, and the Department had sent down an expert. Specimens of the affected Bracken had been taken, and it was understood that for the first time a disease of this native Fern had been discovered. Whether this disease could be spread as a means of clearing a hillside of Bracken had yet to be tested, but the authorities were trying it, and they would know more about it by another year. If, he added, they could develop the disease they would be nearer a solution of the problem than by cutting down the Bracken, which was an almost hopeless expedient. A small area might be cut, but where they had large areas studded with stones and rocks, as in Argyllshire, the cutting process was useless. The disease remedy was a subject for research. It was ultimately agreed that the Directors should apply to the Board of Agriculture for grants.

Mr. John McLaren.—To few men is the pleasure and privilege given to see the commencement of a great work and to carry on the same for forty unbroken years to maturity. Think of this record having been accomplished in a great American city where "changes are lightsome"! What a tribute to McLaren's genius, and what a tribute to the wisdom of the successive Park Commissioners who maintained the continuity of service. The visitor to-day cannot realise that fifty years ago the thousand acres which form the Golden Gate Park at San Francisco were a wild waste of sands, blown about by every wind. Let the official report of the Park Commissioners for 1924 speak: "In 1887, John McLaren was appointed. This experienced horticulturist and forester brought his indomitable energy, keen judgment, and strong initiative into his difficult task. In completing the work his predecessors had begun he also devised those newer and better plans of development that eventually brought to the present state of perfection a once almost arid wilderness, making of it an unbroken expanse of forest and glen, hillock and glade, gladdened by masses of eternal verdure and bloom from the city to the sea." Mr. W. M. Cuthbertson writes: "Three times I visited this great park, each time having the pleasure of Mr. McLaren's company. Each time I left it I felt how grand had been his triumph in creating a great pleasaunce—a place of restfulness with nothing garish to disturb or distract. Flower beds are numerous and the subjects well-chosen, but they are set back from the foreground in every case—all a part of the great plan. Nearly two thousand species of trees and shrubs are cultivated in the Park. Very special attention is given to a collection of eight thousand named Rhododendrons. In addition to these named varieties an enormous number of seedlings are coming along. The Geographical Society of America, on one of its expeditions, sent a botanist, who travelled through Burma, across the Himalayas and Tibet, to the borders of China. The 'Rhododendron result' was four hundred parcels of seeds sent to Mr. McLaren. In three or four years' time all the seedlings should flower; I peeped into one glade which was planted with six thousand of them. Mr. McLaren has recently been awarded the Gold Medal of the Massachusetts Horticultural Society, and San Francisco has placed a full-length portrait of him in the Palace of the Legion of Honour. He must be the 'Grand Old Man' of American Horticulture. Though verging on eighty, his eye is not dimmed nor his natural force abated; he is looking forward with zest to the development of a new park of five hundred acres which had just been secured, and taking an interest in a new boulevard which is to extend westward for twenty miles along the shore of the Pacific Ocean! Mr. McLaren is a Scotsman, having been born at Bannockburn, in 1846."

MR. JOHN McLAREN.

R.H.S. of Ireland Spring Show.—The Spring exhibition of the Royal Horticultural Society of Ireland will be held on April 5 and 6. An additional class for Violets has been added to the Schedule, and Mrs. Hum Bland, of Abbeyleix, has presented a Silver Challenge Bowl for competition in this class. The exhibition will be held in the Covered Court, Earlsfort Terrace, Dublin, by kind permission of the Earl of Iveagh.

November Rainfall in West Dorsetshire.—Mr. Dick Rintoul, Melbury House Gardens, Dorchester, informs us that the rainfall experienced at Bartley (see p. 503, December 25, Vol. LXXX) in November last was exceeded in many gardens in West Dorsetshire. In Sir Henry Peto's garden at Cheddington Court, 11·51 inches were registered; Mr. Trotman, Beaminster, came second, with 11·44 inches; Mr. Debenham, Clarvilles Urston, and Col. Kitson, Netherbury, each registered 11·11 inches; 11·06 inches was the November record for the Melbury Gardens, while other gardens recorded 10·5 and 10·42 inches. The Melbury records for rainfall in July, August and September were 1·82, 1·25 and ·80 inches, respectively.

Seeds and Tubers for Exchange at Swansea.—In connection with its Educational Garden at Singleton Park, the County Borough of Swansea has issued a lengthy list of seeds, tubers, etc., available for exchange with other similar establishments. The list is in double column on three foolscap folios, and contains about four hundred species and varieties of plants; copies may be obtained by similar establishments on application to Mr. D. Bliss, Parks Superintendent, Parks Office, Prospect Place, Swansea.

Horticultural Journal's Jubilee.—With the December number of the Austrian journal *Illustrierte Flora*, that paper celebrates its fiftieth anniversary; and what is more remarkable still, during all that period there has been but one editor, Oekonomierat Otto Pfeiffer, who thus celebrates his own jubilee at the same time. The paper has seen many ups and downs, but it has a large circle of readers who are very pleased to see it enter upon its second fifty-years' period.

Veitch Memorial Medal Awards.—Gold Veitch Memorial Medals have been awarded by the Council of the Royal Horticultural Society to Mr. George Forrest, V.M.H., for his explorations and plant introductions; to Mr. James Hudson, V.M.H., for general services to horticulture; to Rev. G. H. Engleheart, V.M.H., for his work on Daffodils; and to Mr. H. B. May, V.M.H., for general services to horticulture. The Silver Veitch Memorial Medal and £25 has been awarded to Mr. W. Camp, late foreman to Messrs. T. Rivers and Son, a clever exponent of the orchard-house cultivation of fruit trees; and a Silver Veitch Memorial Medal and £25 to Miss Matilda Smith, for her botanical draughtsmanship, especially in connection with the *Botanical Magazine*. The Council of the R.H.S. has offered a Silver and a Bronze Veitch Memorial Medal to be awarded by the deputation of the Council on the occasion of the centenary show of the Société Nationale d'Horticulture de France; and also a medal to be awarded to the best exhibit of Irises by an amateur at the Iris Society's show on June 2.

Legacies to Gardeners.—The late Mr. Frank Bruce Howden, of Red Cliff, Paignton, who died on September 4, left his gardener, Mr. Walter Frank Bradford, £100, a freehold house at Paignton, and his shed at The Harbour, Paignton, with all his tools and its contents; also £100 to his wife, Mary Bradford, and £50 to their son, Morris Frank Bradford.—The late Mr. Harold

Lansdowne, Beale, of Findon End, near Saffron Walden, left his gardener, Mr. William Parish, £210, if still in his service. We are pleased to note that, while making only two personal bequests, the late Miss Alice Ann Pilkington, of Laneside House, Accrington, left £500 to her gardener; the residue of an estate of about £40,000 will benefit various Lancashire charities.

New Victoria Medallists.—The Council of the Royal Horticultural Society has awarded the Victoria Medal of Honour in Horticulture to Mr. H. G. Alexander, Orchid-grower and raiser to the late Sir George Holford, Westonbirt, Tetbury, Gloucestershire; Mr. R. L. Harrow, Curator of the Royal Botanic Garden, Edinburgh; Mr. Chas. R. Musgrave, Hascombe Place, Godalming, Treasurer of the Royal Horticultural Society 1922-24, for several years a member of the Council and now Chairman of the Housing Committee which is concerned with the building of the new hall; Mr. W. W. Pettigrew, Superintendent of the Manchester Corporation's Public Parks and Gardens, and formerly Superintendent of the Cardiff Parks; Professor Fred. V. Theobald, M.A., one of the greatest authorities on injurious insects and the author of many useful books, including *The Plant Lice or Aphididae of Great Britain*, of which the first volume has been published; Mr. W. E. Wallace, Eaton Bray, Dunstable, one of the pioneers in this country of the commercial cultivation of perpetual-flowering Carnations and a raiser of many novelties; and to Mr. Alfred Watkins, founder of the firm of Messrs. Watkins and Simpson, wholesale seedsmen, Drury Lane, London, E.C. We offer our congratulations to all these gentlemen, to whom the Medal will be presented on the occasion of the Society's Annual Meeting, Tuesday, February 8, at 3 p.m.

Royal Gardeners' Orphan Fund.—The Annual General Meeting of subscribers to the Royal Gardeners' Orphan Fund will be held at Simpson's Restaurant, Strand, London, on Wednesday, February 16 next, at 3 p.m. The principal business to be transacted will be the receipt of the Committee's Report and the Statement of Accounts for the past year; the election of officers for the ensuing year and the election of approved orphan children to the benefits of the Fund. We would remind our readers that there still remains time for any additional nominations. The Fund grants allowances of 5s. weekly to the orphan children, under the age of fifteen years, of gardeners, managers and foremen in nurseries, seed houses, public and market gardens. Nomination forms may be obtained from the Secretary, 19, Bedford Chambers, Covent Garden, London, W.C.2, from whom information concerning the Fund may be obtained.

Loder Rhododendron Cup.—This Cup was presented to the Royal Horticultural Society by Mr. Gerald W. G. Loder in memory of his brother, the late Sir Edmund Loder. It is awarded once only in seven years, by five judges, three of whom are appointed by the Royal Horticultural Society and two by the Rhododendron Society. Rhododendron enthusiasts will learn with pleasure that the Cup has been awarded to Lionel de Rothschild, Esq., Exbury, Southampton, "for the work he has done in furthering all movements concerned with the introduction and cultivation of Rhododendrons."

Devon Orchards.—At a Conference held at Exeter on the 17th ult., to consider the production and supply of young Apple trees for cider orchards, Mr. D. Manning, County Horticultural Superintendent of Devonshire, stated there were 11,000 acres of orchards in Devon that were practically unproductive, and that it would require 20,000 trees a year for twenty years to put the Devon orchards in order. Professor P. B. Barker, of the National Fruit and Cider Institute, Bristol University, said there was need for a considerable extension of the planting of new orchards in the county, and that the orchard position in the west of England was, generally speaking, very bad. Another speaker said that there was at the present time a big demand for cider, due partly to its increasing popularity and partly to the high price of beer, and it was to be expected that cider would continue to be a popular drink. Mr. Whiteway offered to give to all farmers selling cider Apples to his firm ten trees for every hundred trees they planted between now and the end of the season. Lord Clinton said a great demand for cider was developing, and there was serious risks of shortage of supplies. The cause of the scarcity was, he said, a limited supply of suitable trees and the insufficient knowledge of owners and occupiers as to the proper management of orchards. The meeting passed a resolution "that this conference realises the necessity for a larger supply of cider Apple trees and a greater improvement in the orchard industry, and urges owners and occupiers in the county to support the efforts of this conference in that direction."

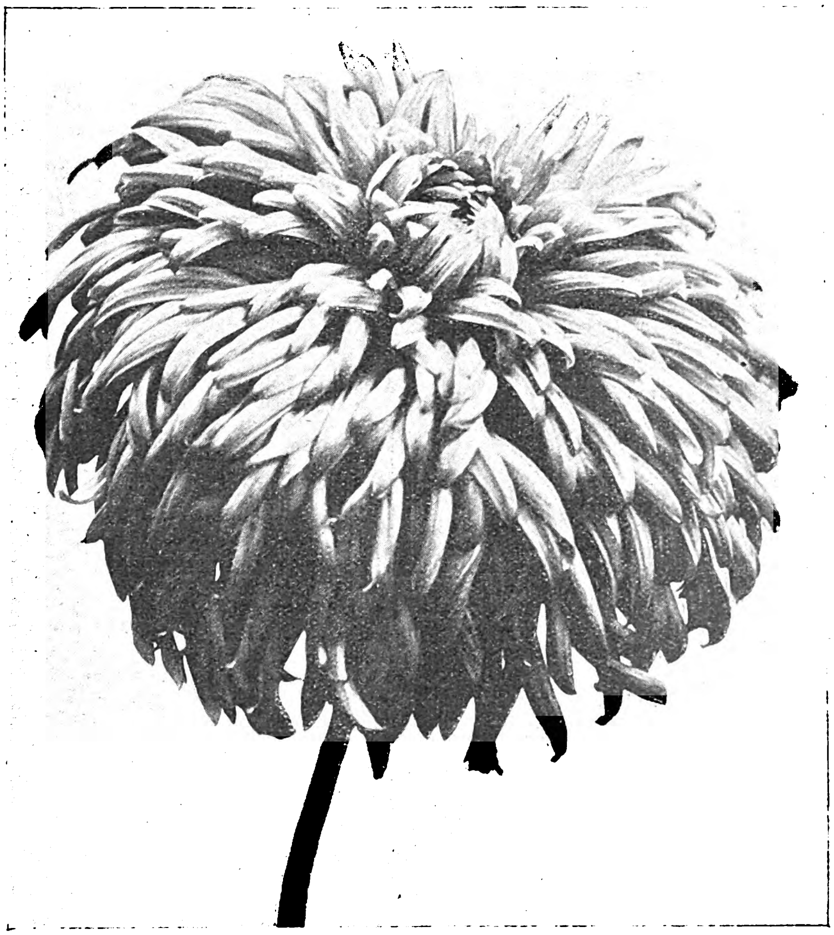


FIG. 1.—CHRYSANTHEMUM RUDDIGORE.

National Chrysanthemum Society's First-Class Certificate, November 29, 1926, and Royal Horticultural Society's Award of Merit, November 30, 1926. Colour glowing chestnut. Shown by Messrs, Cragg, Harrison and Cragg.

Cory Cup for the best New Hardy Plant of 1926.—The Cory Cup, awarded by the Council of the Royal Horticultural Society for the best new hardy plant of garden origin shown to the Society in the course of the year, has been awarded for the year 1926 to Mr. F. Howard, California, for Crindonna Memoria-Corsii. This plant was described and illustrated in *The Gardeners' Chronicle*, January 15, 1921.

The Lawrence Medal.—The Lawrence Medal was instituted in 1906 to celebrate the late Sir Trevor Lawrence's twenty-one years' tenure of the office of President of the Royal Horticultural Society. It is in gold; only one medal is awarded annually, and never to the recipient in either of the previous years. It has been awarded for 1926 to Messrs. R. H. Bath, Ltd., Wisbech, for Daffodils.

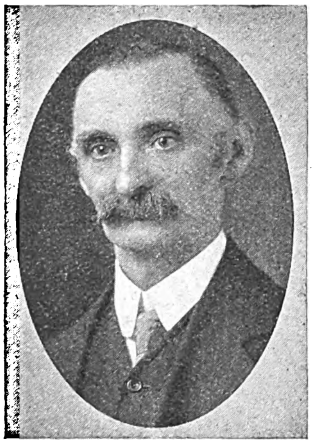
"Gardeners' Chronicle" Seventy-five Years Ago.—*Tomatos.*—The Tomato is generally cultivated in noblemen's and gentlemen's gardens; but in cold, late summers it can rarely be got to ripen before the autumn frosts set in, although strong plants are put out by the middle of May, and trained to a south wall. This, at least, is my case, but probably some of your readers can give a hint as to obtaining an early supply. I received three varieties in the shape of seeds late last spring, from a friend who brought them direct from Virginia. They were named the "Pear-shaped," the "Egg-shaped" and the "Large Red," all red sorts, the last-mentioned being the best. All of them possessed a fine, smooth skin, without the furrow common to the old sort, and I should prefer the large red to the old kind. It would probably not grow quite so large, but it has a much nicer appearance. Although later in being sown and planted out than the old sort, they beat it in earlier ripening, thereby confirming the well-known axiom in vegetable physiology, that plants habituated to early excitement will flower and fruit sooner than those on which no such treatment has been practised. Perhaps this disposition is more inherent in plants than seeds. Seeds from warmer climates are, however, to be preferred; for in them early and well-matured habits, for centuries, would not be destroyed for two or three years. This is a point, therefore, to which nurserymen should attend, *W. Brown, Merevale, Gard. Chron.*, January 3, 1852.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Orchid Grower to LADY LEON, Bletchley Park, Bletchley, Bucks.

Forewords.—The cultivation of Orchids has improved considerably during recent years, and their requirements are better understood; yet in large and varied collections there are always some plants which do not grow satisfactorily, and not always from want of care on the part of the cultivator. The only way to success is by careful observation and an intelligent study of each plant's individuality and requirements. Even when the best possible conditions are provided, some districts are more favourable for certain plants than others; and even some plants grow better in a certain position in the house than in another. It is not absolutely essential to have a separate division for each section of Orchids. The only structures really necessary are the East Indian, or the hottest house; the Cattleya or intermediate house; the Mexican house, and the cool or Odontoglossum house, and these will accommodate all the Orchids in cultivation under glass.

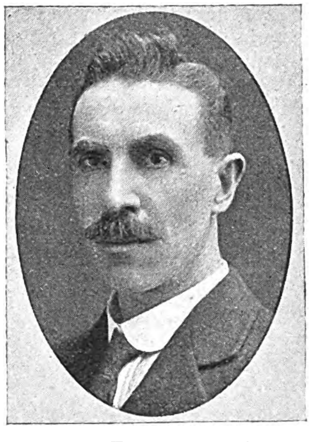


Temperatures.—The respective temperatures by night for this and the next three months should be as follow: East Indian house, 60° to 65°; Cattleya house, 58° to 60°; Mexican house about 55°; cool house, 45° to 50°. In very severe weather these figures may be allowed to fall one or two degrees, provided cool conditions are not continued for too long. Orchids are, as a general rule, sensitive to fluctuations of temperature, and they will not long continue in good health if they are subjected to extremes of atmospheric warmth.

Details of Cultivation.—The essential details in the cultivation of Orchids are, firstly, a buoyant, healthy atmosphere in each division; secondly, to apply pure, soft water to the different plants with discretion; thirdly, to repot each plant at its proper season, that is, when it is making, or about to make, new roots, and fourthly, to use the best potting material available. Extremes of temperature, etc., should be guarded against; for example, a very warm, dry atmosphere, and a low, cold, damp one are both harmful. During a period of cold weather the atmosphere of the houses should be kept considerably drier than usual, and less water afforded the plants, as a cold, wet compost would cause the roots to decay. If the general cleansing of the houses and their occupants has not already been accomplished, it should be completed so soon as possible. It is advisable to cleanse every plant, washing it thoroughly with an insecticide, as at this season the different insect pests of Orchids are easily eradicated. The leaves and pseudo-bulbs of the majority of the plants are fully matured, and the cleansing operations may be carried out with little risk of injury to the plants. When the weather is open, it is advisable to obtain a stock of the various fibres, peat and Sphagnum moss, so that when the busy potting season arrives there will be no delay in securing the materials.

THE KITCHEN GARDEN.

By R. H. CROCKFORD, Gardener to THE RT. HON. LORD WAVERTREE, Horsley Hall, Gresford, N. Wales.



Ground Operations.—The New Year begun, all arrears of trenching or digging should be proceeded with at once, as much will be gained by the weather pulverising and sweetening the soil. Whenever possible, I strongly advocate trenching, which results in better drainage on heavy land, and is a greater resistance by the crops against drought on light soils, besides several other advantages, such as better aerated and warmer soil, and freedom for root penetration. Presuming a plan of cropping has been drawn up, the tap-rooted vegetables will have been allotted ground that has not been recently manured, otherwise forked roots will result. These crops will be greatly benefited by a dressing of about four ounces to six ounces of basic slag to the square yard, either spread on the surface or mixed with the soil as it is dug, with burnt garden refuse, and about three ounces to four ounces of kainit to the same area. Kainit not only supplies potash to the soil, it kills many insect pests. Organic manure, for such crops as need it, should be well incorporated with the soil and at good depth, bearing in mind possible periods of drought. At this time of the year, the rougher heavy land is left on the surface, the better will be the tilth later; for this reason ridging is highly advantageous, where circumstances admit of this form of tillage.

The Seed Order.—The sending of the seed order should no longer be delayed. When ordering seeds remember that good varieties are no more trouble to grow than inferior ones. It is also wise to study peculiarities of varieties with regard to soil and district. For instance, it is useless to order the longest-growing varieties of tap-rooted vegetables where only a very shallow soil exists, unless boring special stations for each plant is resorted to.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to COLONEL SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Figs.—Pot Figs which were placed in a steady bottom-heat at the beginning of the past month and kept judiciously syringed with tepid water, will now be swelling their point buds, a condition which will justify a little more atmospheric moisture and a somewhat higher temperature on the bright days, which are so prevalent during sharp, frosty weather. The rise in temperature should, nevertheless, be slight, and only by day. The best time to syringe the trees is about noon, when the little ventilation afforded must be discontinued, not so much to raise the temperature, as to secure a moist, genial atmosphere favourable to the development of the young leaves and the swelling of the fruits. When this stage is reached the trees will make rapid progress, especially if the arrangement of the pots favours frequent turning and renovation of the fermenting materials. If thoroughly pot-bound, as early forcing Figs in pots should be, it is more than probable the space for top-dressing and watering will be limited, but liberal feeding being so important to success, this difficulty may be obviated by placing a band of zinc or turf, about three inches deep, just within the rim of the pots. Figs are such gross feeders and so liable to cast their finest and most forward fruits that the roots should be encouraged to find their way into the sods of turf on which the pots are standing. The temperature may range from 50° to 55° at night, a little more or less, according to the outside atmosphere; it is better to err on the safe side than force the trees unduly at this stage, especially at night.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STAFFORD, Wrotham Park, Barnet, Middlesex.

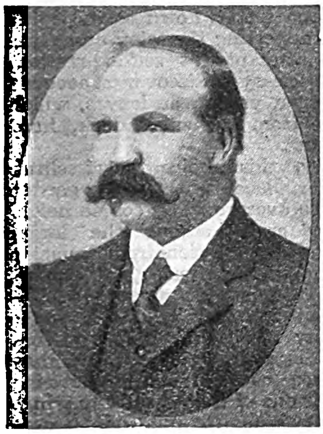
Sweet Cherries.—The planting of Sweet Cherries is best done early in the autumn, but this operation may be continued until March with every prospect of success. The soil in which the trees are planted requires to be well-drained; a sweet, fertile loam, mixed with plenty of old mortar and a little wood ash is suitable to this fruit. Bone-meal and, if available, thoroughly decayed manure from the farm-yard should be dug into the ground. When the soil has settled mark out the positions which the trees are to occupy alongside a wall with a west aspect, and excavate the holes to the depth of two-and-a-half feet. Each station should form the outline of a half-circle five feet in diameter. At the bottom of the hole put a layer, fully six-inches deep, of broken bricks, over which place turves grass-side downwards, or strawy manure, in order to prevent the fine soil from getting into the drainage and clogging it. In planting the roots use prepared soil, making it somewhat firm as the work proceeds. Select young, healthy trees for planting, and defer pruning them until a later date. Good varieties will be found in Early Rivers, Elton Heart, Kentish Bigarreau, Bigarreau Napoleon, Bigarreau Schrecken, Waterloo, Circassian and May Duke.

Morello Cherries.—These fruit trees are usually trained on north walls, and as pruning and training the branches are very cold operations in mid-winter, they are best done so soon as the trees have shed their leaves. Assuming that the work has been deferred, endeavour to complete it on all favourable occasions. Large trees, if well balanced, need not be detached entirely from the walls, but the old shreds and ties should be examined carefully and removed if found to be tight and injuring the bark. Do not allow the young branches and fruiting shoots to become crowded. Train in good, sturdy shoots at intervals all over the trees, both for fruiting and replacing older branches that may have to be cut out entirely. Young trees should be removed from the wall and the new shoots pruned and regulated. Train the branches at equal distances apart, allow ample room in the ties for the bark to swell, and be very careful not to damage the bark when driving in the nails. Young trees from the nursery should be planted in good soil mixed with plenty of lime rubble. Defer the pruning and nailing of the trees to a later date; when these operations are decided on, keep the centre of the tree open. Central growth should never be encouraged to develop when laying the foundation of a young, fan-shaped tree.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Introductory Remarks.—Where the cleansing of plant houses and their occupants have not received attention, the work should be completed forthwith, for plants thrive best when growing in sweet, clean conditions. Certain plants may have failed during the past year and failures are often due to circumstances which the grower can more or less control, therefore, it behoves all to review the results of the past year and find out where mistakes have been made.



Perpetual Carnations.—Plants propagated last month are ready for placing singly in small pots filled with light, sandy soil, which should not be made too firm by ramming at this stage. Stand the young plants in a low house on a moderately damp bottom; in such conditions the roots will require very little water until they become more active. The day temperature of the house should be as near 55° as possible, with as much top air as the outside conditions will allow; the temperature may fall to 50° at night. Continue to propagate these plants to provide successional batches to those already potted. Cuttings will soon take root if placed in propagating frames in the temperature named above; remove the frames entirely every morning for a short time to allow the condensed moisture to escape. Some growers favour rooting the cuttings in sand only, but I prefer to root them in equal parts of soil and sand.

Flowering Plants.—The top ventilators of houses in which plants are in bloom should be opened both night and day, and unless the weather conditions prove very severe, they should never be closed tightly. Do not maintain high temperatures by the use of an excessive amount of fire-heat, for this would result in weakened growths and blooms that lack substance. A night temperature of 50° is suitable to plants that are flowering, but on mild nights this amount of warmth may be exceeded to the benefit of the plants; on the other hand, allow the temperature to drop a few degrees on cold nights rather than use too much fire heat. Concentrated manures should be used sparingly at this date, but the amount may be increased towards the end of the present month, with the lengthening days. Late batches of Calceolarias, Schizanthuses, Cinerarias, Clarkias, and other annuals that are growing in small pots may now be placed in larger receptacles for it is not advisable to allow the roots of any of these plants to become starved. These annuals will succeed in good, ordinary soil, and when they have filled their receptacle with roots, they may be fed with liquid farm manure, on frequent occasions.

THE FLOWER GARDEN.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Bedding Plans.—Although the bedding-out season seems far off at present, it is wise at this time to consider bedding schemes that were settled on when the past season's display was at its best, for then was the proper time to take note of unsatisfactory arrangements, as well as of those that proved most pleasing. An examination of perennial plants, such as Pelargoniums and Calceolarias that were propagated last autumn, should be made, and if there is a shortage of stock most of the plants may be readily increased by means of cuttings inserted at this period of the year, Where formal bedding schemes have to be carried out, it is of the utmost importance to have the required number of plants, as the variety is often limited by the taste of the owner. Where a formal garden does not exist but, may be, a series of more or less isolated beds, the same trouble does not arise, for any failure may be readily rectified by substituting some plant that is readily raised from seeds during the beginning of the year. There are many such subjects, and they are increasingly popular for furnishing beds during the summer because they obviate the trouble and expense of finding accommodation for them during the winter. Many half-hardy or even hardy annuals, such as Nemesias, Salpiglossis and Dimorphotheca aurantiaca, may be used for this purpose. Where a display by these annuals will not last out the season, it may be arrranged to replace them with early flowering Chrysanthemums or China Asters, both of which may be grown in the reserve garden for the purpose; with care, they will transplant readily even when coming into flower.

Antirrhinums.—There are so many beautiful varieties of Antirrhinums that complete bedding schemes may be arranged with them solely, and for this purpose the intermediate varieties are most suitable, although the dwarf varieties have their value for small beds and as edgings to beds. If the seeds are obtained from a reliable source the varieties will come practically true to colour, and as each variety has a distinct leaf character it is easy to detect a stray rogue in the seedling stage.

Begonias.—Begonias of the tuberous-rooted section may also be easily raised from seeds and the plants bedded out in their first season. The fibrous-rooted Begonias belonging to the semperflorens section deserve to be far more generally used for summer bedding for they are easily raised from seeds, which, if of a good strain, will give plants true to name; if a strong rogue appears it is easily detected in the seedling stage. These Begonias have the merit of being indifferent to average weather conditions, for rain or shine, they continue blooming until cold and frost finish them off. They may be used alone or associated with light, elegant foliage plants. A few of the best varieties are Primadonna, Pink Profusion, Bonfire and Glory of Erfurt.

Protection.—As a rule the coldest weather of the year occurs early in the New Year, and if not done already, it is wise to arrange for suitable material to be available for protecting tender plants, either in the open or trained on walls, as slight protection may be the means of saving a valuable or interesting plant. Protection from the sun when the plant is frozen is of the utmost importance; whatever protecting material is used, it is important that it should remain dry for so long as possible, and also be permeable to light and air. Material that lies close and wet and excludes air does more harm than good. It is also important that it can readily be removed from the plant or plants when not actually required.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Forewords.—I would like to acknowledge the kindly criticisms and encouraging commendations received during the past year from readers living far apart, which shows how widely and carefully *The Gardeners' Chronicle* is read, and while endeavouring to put down in writing my own methods, it is only natural to expect that these may sometimes differ from those adopted by others. There is more than one method of assuring success in gardening, and it is always well to keep an open and receptive mind. The ramifications of horticulture are so extensive that even the most ardent student realises his limitations, and the most experienced have had to confess that the longer they live there is still more to learn.

Perpetual Carnations.—These plants may be propagated successfully over several months of the year, but cuttings inserted now will have all the advantages of the gradually lengthening days, and where cuttings are available these should be inserted forthwith. In selecting cuttings of Perpetual Carnations choose those of medium growth, rejecting any that are too thick and fleshy as well as those that are very slender. Make the cuttings either by severing the stem immediately below a joint with a sharp knife or by making them into pipings by snapping the stem in two at a suitable joint. This last method is quite as successful as the other in experienced hands, as the grower seems almost to know by instinct which is the best joint to snap across, leaving the piping at a suitable size. Insert the cuttings firmly in sandy soil in pots, boxes or propagating cases, according to requirements, and water the soil to cause it to settle. Root the cuttings in a steady bottom-heat of 65°.

The Seed Order.—Seedsmen's catalogues are being delivered by nearly every post, and profit as well as pleasure may be gained by a careful perusal of these publications. Plant novelties are usually given great prominence, and while advising that some of the more promising should be given a trial, it is always advisable to rely on sorts that have proved reliable in the past. Another point worthy of note to northern gardeners is that while some of these novelties may be worth growing in the south they may not prove hardy enough to enable them to be grown successfully farther north. The best method of gaining experience in the matter of fresh subjects is to visit gardens in the same county.

Box Edgings.—If the Box plants have been growing on the same site for many years some of the soil may be removed and richer soil from the vegetable quarters substituted, This may give a new lease of life to the plants.

THE GREY GARDEN.

THE grey garden is a most restful and charming part of the garden in summer, and although at mid-winter many of its earlier charms have departed, it remains just as fascinating, and, in a way, even more attractive, because all outdoor floral colour schemes have vanished, and those plants which have glaucous, blue or grey foliage are brought into more prominence.

If the border is backed by a hedge it adds wealth to the colour scheme, if this is of a grey or bluish hue, and an excellent subject for this purpose is Cupressus Lawsoniana Triomphe de Boskoop. If there is no definite hedge, specimens of this Conifer may be used to extend the background in an informal way, together with C. L. Fletcheri, Juniperus pachyphlaea elegans and Picea pungens glauca, all of which are good subjects for winter effect.

Yuccas are also suitable for inclusion in the grey garden, for their slightly glaucescent foliage contracts pleasingly with the lighter coloured subjects. Phlomis fruticosa makes a bold shrub with tomentose foliage, and large groups of Lavender, Rue and Rosemary give variety in shades of colour, while Santolina incana is a strikingly beautiful plant in winter, its finely-cut, almost white foliage being prominent from a great distance.

Amongst dwarfer growing subjects may be mentioned the Pinks, most of which form dense masses of fresh blue foliage which remains effective all the winter; Raoulia australis, which makes a carpet of delightful grey foliage, particularly if it is given a few stones to creep over; Veronica pimeleoides, a dwarf, spreading shrub with good, ever-grey foliage; and Stachys lanata, which retains its greyness well into the winter but loses its lustre towards spring. *A. P. C.*

ALPINE GARDEN.

GLOBULARIA INCANESCENS.

SEVERAL of the smaller Globularias are charming rock garden or moraine plants, and it is unfortunate that they do not appear to succeed in some rock gardens. The species under notice, Globularia incanescens, has proved a difficult plant with many, but it will succeed in a moraine.

A healthy plant of G. incanescens, in flower, in June, is so pretty that one is apt to linger over it and admire its close carpet of tiny leaves and the wonderfully large, globular, blue flower heads.

This species only grows about four inches high. Where a moraine is not available a well-drained, gritty pocket of light soil in the rock garden may suit it.

BAHIA LANATA.

OF the score or more known species of Bahia, B. lanata is the only one that appears to be in cultivation. It is also known as Eriophyllum caespitosum, under which name I first grew it many years ago. It is a native of North America and reputedly hardy with us. Its foliage, however, is subject to much injury in excessively wet winters, and it is occasionally lost through this cause unless protected from overhead wet at that season. This is easily afforded by means of a sheet of glass, or even a thin board or slate, raised about six inches above the plant. A small specimen is of little effect, but a large one is of considerable beauty, and will give a succession of flowers for months. The blooms are yellow and harmonise exceedingly well with the grey or silvery foliage.

It is a distinct-looking plant, with flowers of a bright golden yellow, adaptable for planting either in the front of the border or in the rock garden, for it is of rather procumbent habit. It grows best in a sunny place and a light, dry soil.

B. lanata is easily raised from seeds, and may also be increased by division and cuttings.

POTENTILLA HOPWOODIANA.

SOME of the older Potentillas, not now much seen, are quite satisfactory plants, and have much beauty to commend them. They do not, it is true, equal such varieties as Gibson's Scarlet, but they have much charm.

P. nepalensis var. minor (syn. Tonguei) is one of the recognised favourites for rock gardens, but is not too often seen. Still more seldom met with nowadays is P. Hopwoodiana, a taller plant than P. nepalensis minor and attaining about a foot in stature. It is a choice, hardy plant and suitable for the flower border or the rockery. It will grow well in any good garden loam and may be increased by division of good-sized plants. This Potentilla has pretty, creamy flowers, with salmon-pink veins, and a distinct eye of deep crimson. *S. Arnott.*

MORISIA HYPOGAEA.

THIS delightful, little, yellow-flowering plant may be grown without difficulty in a variety of places in the rock garden where there is a good depth of light, sandy soil. Apart from its showy blossoms it forms pleasing and attractive rosettes of evergreen, serrated leaves. Morisia hypogaea is readily increased by root cuttings. The simplest method to adopt is to lift an established plant, remove its thicker roots, cut them into lengths, and root them in pure sand in a warm frame or propagating pit. The root-cuttings should be kept syringed and grown in a close atmosphere until they have made sufficient top growth to need potting. Propagation may also be effected by leaf-cuttings. *J. T. H., Wisley.*

DAPHNE RUPESTRIS.

OF all flowering shrubs suitable for the rock garden, Daphne rupestris—or as it is seldom, though more correctly, called, D. petraea —is one of the smallest, the rarest, and the most beautiful. It is a purely saxatile species, existing only in limestone cliffs in a very limited area high up in the mountains in the neighbourhood of the Largo di Garda. It has twice been my good fortune to visit Daphne rupestris in its native cliffs, once with the late Reginald Farrer, and then a few years later with my wife. On the latter occasion the plant was in full flower and was one of the most wonderful floral sights I have ever seen. With great difficulty one could get to the base of the cliffs where it grew, then had to creep and crawl, and hew from the hard limestone a plant here and a scrap there, whilst always a few yards above one, yet quite out of reach, the Daphne began to be plentiful, and as one looked further and higher up those stark and terrible cliffs, the plant abounded in the most amazing profusion. Every crack in the rocks seemed to be packed with rose-pink, waxy blossom, pouring its heavy, heady fragrance down to the luckless collectors below.

For many years Farrer possessed a famous plant of Daphne rupestris which came annually to the old Temple Show, where it never failed to cause the specialists to "gasp and stretch their eyes." It was the most wonderful specimen in cultivation, without a doubt. One could not steal it, for in London it was always shadowed by a private detective in the shape of a nursery foreman or a garden boy. Nor could one buy it. A firm offer of £150 was said to have been refused for it, and I myself offered Farrer £200 for it—which caused a temporary coldness, for he was sensitive to chaff. This specimen was about as big as one's two fists: there on "Rocca Longa" were rock crevices packed with it in streaks and ribbons yards long, and it went soaring up those cliffs to the clouds in hundreds of feet of utterly impregnable temptation and tantalisation. Whilst we were there, the memorable occasion was made yet more memorable first by Farrer turning up with a companion, and then Monsieur Correvon. We had come up over night and slept on the floor of a leaky stable near a collection of cowherds' huts an hour or so below the Daphne Cliffs, whilst Farrer and Correvon had arrived by opposite routes that morning, after very early starts. On our first visit, Farrer and I did the whole climb in one day, starting somewhere about 5 a.m., and by going hard all day, with only a break here and there to collect, and to bite a biscuit, we got in at about 9.15 p.m., and that is about as big a day's outing in the Alps as anyone can want!

As to Daphne rupestris in my rock garden, it may be rare and expensive, and a slow-grower, but it is a sure grower and a sure flowerer, especially when grafted. I have had plants on their own roots, fine clumps which I collected as undamaged specimens and then established, but, personally, I have never had any luck with them. They never grew very much and they never flowered with any enthusiasm. Grafted plants, on the other hand, grow steadily, they cover themselves with buds, and smother themselves with flowers with perfect regularity. There are two specimens in particular which I planted in rock gardens which I made in pre-war days, one in Hertfordshire and one in Yorkshire, which have grown into superb specimens, larger than Farrer's world-famous, old pot plant, which, by the way, he planted out on his rock garden and it died, and the gardener at Ingleborough still shows me the fatal spot whenever I visit the garden. Until recently there was a fine little forest of Daphne rupestris on the rock garden at Kew, a dozen or so grafted plants which came originally from me, and for years they grew prodigiously and flowered profusely.

One hint I would like to give as to grafted plants of D. rupestris, and that is that in their first year or two they are apt to throw out suckers from the stock. These suckers should be removed with a sharp knife, and if this is done, the stock soon settles down to its legitimate business of supporting the scion and gives up these foolish attempts at self-expression. The suckers are quite easy to discover on account of their larger, longer, pale green leaves, which are quite distinct from the small dark, hard leaves of D. rupestris.

Needless to say, this choice dwarf shrub should be given a place in the rock garden where it will not be overgrown by coarse neighbours. A narrow space among the larger rocks will give it the protection from invasion that it needs, though it requires, of course, a deep root-run. It is not fussy as to soil—good, lightish loam will suit it, or limestone scree, and a sunny position; it is a convenience to have it placed so that one may enjoy its fragrance without either climbing or grovelling. It is one of those plants to which one instinctively wants to put one's nose when it is in flower. It *looks* as though it smells good—and it does.

Some years ago, that good alpinist, Mr. R. Tucker, collected a super form of Daphne rupestris with flowers almost double the size of the type, a superb thing which has been called D. r. grandiflora. The flowers of ordinary rupestris are themselves surprisingly big for the size of the plant. They blot out everything else, leaves, stems and branches, when fully-expanded, yet in grandiflora—well, I can only say that the plant is well and truly named grandiflora without a shadow of exaggeration.

Farrer, by the by, collected on that day when we all went to "Rocca Longa" a plant which he took to be a hybrid between D. rupestris and D. striata. He wrote a description of this interesting find—maybe in *The Gardeners' Chronicle*—but I never saw the plant, nor do I know if it still exists. The companion who was with Farrer at the time told me a year or so later that he had it in his garden, but, unfortunately, I lost touch with him. If this note should come his way I trust he will make known the ultimate fate of the hybrid. Like so many other things which are small and rare and beautiful, Daphne rupestris is unfortunately expensive to buy. Nor do I see any prospect of its ever becoming cheap. To come within sight of the cliffs where it dwells entails a glorious expedition, but to put it mildly, a fatiguing one, whilst the cliffs themselves are heart-breaking. To anyone but a first class coward, like myself, they might easily be neck-breaking. The mere thought of them sets me wondering, in fact, if Daphne rupestris is not, perhaps, catalogued too low in value! *Clarence Elliott, Stevenage.*

TREES AND SHRUBS.

BILLARDIERA LONGIFLORA.

RECENT remarks by Sir Herbert Maxwell (*Gard. Chron.*, p. 432, November 27, 1926), indicated the attractiveness of Billardiera longiflora in autumn, when carrying a crop of its violet-blue, grooved fruits. This led to some correspondence, and Sir Herbert kindly forwarded a few growths and fruits (Fig. 2) of this Tasmanian climbing plant.

Introduced well over one hundred years ago, Billardiera longiflora may, according to Mr. Bean in *Trees and Shrubs Hardy in the British Isles*, "only be grown out-of-doors in the milder parts of Great Britain. The finest plants I have seen are in the garden of Sir John Ross, of Bladensburg, at Rostrevor, Ireland, and in that of Mr. Osgood H. Mackenzie, at Inverewe, in the county of Ross. Here it flowers freely in July and is then very pretty, but its greatest beauty comes in October and November when the fruits acquire their charming colour. The fruits contain abundant seed, which germinates readily."

The illustration in *Bot. Mag.*, t. 1507 (in 1812), shows the twining habit, narrow leaves and pale yellow, pendant flowers, as well as one of the fruits, and in the text accompanying the illustration the writer remarks "Native of Van Dieman's Island. Plants raised from seeds ripened in this country will most probably be easily naturalised to our climate. Introduced by Messrs. Loddiges and Sons. Flowers from July to August and ripens fruits in the latter month and September. Propagated by cuttings and by seed."

In the milder parts of the country Billardiera longiflora is deserving of cultivation where a free-growing climber may be accommodated, and where plants of attractive appearance in late autumn are especially desirable. *C.*

EUPATORIUM WEINMANNIANUM OUT-OF-DOORS.

THIS plant is generally grown in a greenhouse but, here, and in other mild parts of the country, it should be given a trial in the open. Our garden is on the borders of Gloucestershire, close to the River Wye, and this Eupatorium has succeeded out-of-doors without any protection, and each year the plants are a mass of flower, while at the present time the heads of seeds are quite attractive.

For at least ten years the plants have occupied their present station, and although they bloom profusely annually, they do not grow so freely as in Cornwall, where I have seen splendid bushes some six feet in height.

The white flowers are produced in somewhat dense corymbs in August and September. Sometime during the winter a little pruning may be done, but in most instances the removal of the flower heads, with an inch or two of growth, will suffice.

The plant can be propagated from cuttings made from the young shoots, and they will form roots at almost any time of the year in sandy soil. During the summer and autumn they will root freely in a cold frame.

E. Weinmannianum (or more correctly E. micranthum) is a native of South America, whence it was introduced in 1867. *T. W. B.*

CISTUS.

THIS genus is closely allied to Helianthemum and where the conditions are suitable for the one it will generally be found possible to grow both the Rock and the Sun Roses. The home of the Cistus is the Mediterranean regions, therefore, in our duller skies, the plants should be grown in the driest and sunniest places possible.

The individual flowers are of short duration, lasting only a few hours during the earlier part of the day, and they have generally fallen by mid-afternoon, but such a constant succession is maintained that each sunny morning sees a brilliant display which is carried on for about two months. Unfortunately, all the varieties are not hardy and quite a number will succumb even in moderately severe winters. They are plants that are easy to propagate and have the advantage of being rapid growers, therefore it is advisable to grow a few young plants under glass to take the place of any that have failed during the winter.

Propagation is effected by seeds or cuttings. Seeds are produced freely by some species, but the most of the hybrids have to be raised from cuttings, which root freely if inserted towards the end of summer in a cold frame, under a bell-glass in the open, or in a propagating pit furnished with a little bottom-heat.

As Cistuses do not transplant well from the open ground, it is advisable to pot them on when rooted, and keep them growing in pots until they are transferred to their permanent places.

The ideal position for growing Cistuses is in full exposure to the sun, in a place where they are sheltered from winds, in warm, well-drained, sandy soil. They seldom, if ever, suffer from drought when they are well established, and are ideal subjects for covering dry, sunny banks. A covering of dry Bracken or Spruce branches during periods of hard frost will often help to carry the more tender varieties through the winter.

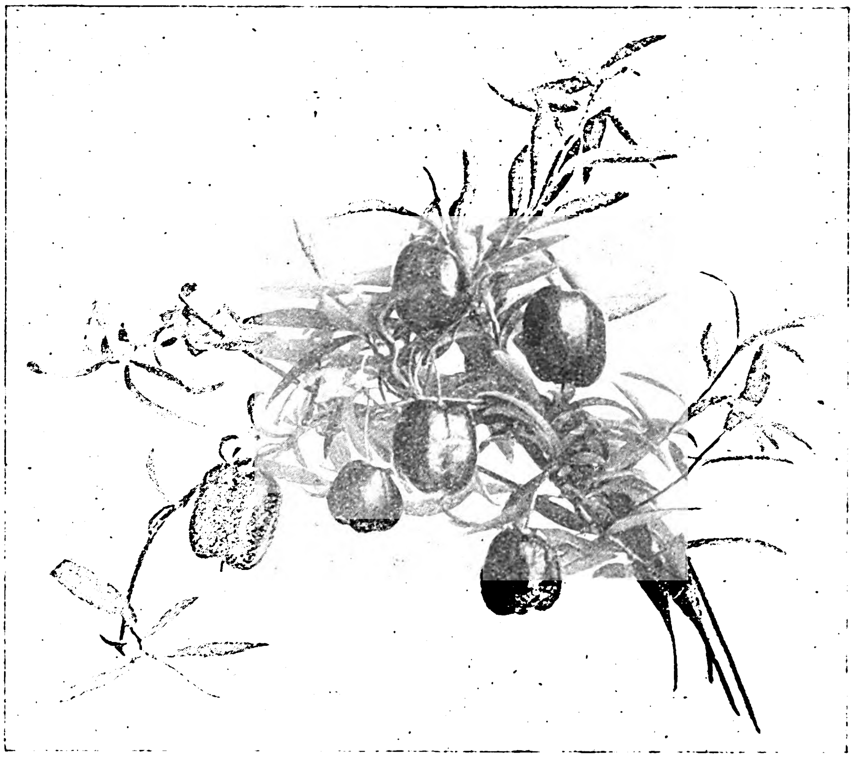


FIG. 2.—FRUITS OF BILLARDIERA LONGIFLORA.

The character of the soil or drainage they are growing in is an important factor in wintering these plants. Those growing in a light, sandy, well-drained medium will come through the winter more successfully than others planted in less ideal positions. It is not advisable to adopt the usual time of planting during November or December, but to defer this until spring; if planted during autumn, and a period of frost sets in, the plants seem to get crippled and never thrive with the same vigour as those that are planted during spring.

Cistuses, as a rule, are not long-lived plants, except such species as C. laurifolius and C. cyprius, therefore it is wise to keep a few young plants in stock to replenish losses. The seven following species and varieties will be found to give a maximum of flower, either as shrubs in the open or with the protection of a wall in the colder districts.

Of the stronger-growing kinds, C. cyprius is a vigorous, evergreen shrub, with shining, fragrant gum on the young wood and leaves. The flowers are borne in clusters; they are white with a bright red blotch at the base of each petal.

C. laurifolius is a robust species with a more erect habit of growth, sometimes, under favourable conditions, attaining a height of eight feet. The flowers measure two to three inches across and are produced from June onwards. This is probably one of the hardiest species, and is useful for planting near the seashore; fine old plants of this Cistus have been growing for years on the bleak coast of Kincardineshire without being damaged.

C. crispus, a compact, bushy plant, grows about two feet high, and has rose-red flowers from one inch to two inches in diameter. It is fairly hardy, and will withstand all except the severest winters.

C. purpureus is by far the best of its colour, and the largest-flowered of the Rock Cistuses. It makes a fine, symmetrical bush from three feet to four feet high and as much through. The flowers are of a reddish purple with a deeper coloured blotch at the base of each petal; they are borne in clusters of three. It is a most attractive plant when in flower, but, unfortunately, it is none too hardy, and should have protection during hard frosts. This is said to be a hybrid between C. villosus and C. ladaniferus.

C. ladaniferus is a handsome, evergreen shrub, attaining a height of four feet to six feet, and with erect habit. The young growths are clammy and very sticky. The flowers, which are solitary, are white with a delightful crimson red blotch at the base of each petal.

Cistus Silver Pink is a delightful hybrid which should become a very popular garden plant, as it has many good points to recommend it. The colour is a clear pink which few would object to. The habit of carrying its flowers on stiff, upright stalks, the blooms lasting until late in the afternoon, the free-growing, compact, bushy form, and the hardiness of the plant, make it a most desirable variety to grow.

C. formosus is rather tender and is apt to be killed during severe winters. It is such a beautiful plant that it is worth the trouble of keeping a few specimens under protection during winter and planting them out in spring on a warm, sunny bank. The bright yellow flowers, with purple-brown blotch near the base of each petal, are most attractive. *F. W. G.*

ROSE GARDEN.

ROSES IN OXFORDSHIRE.

THE photographs I send you (Figs. 3 and 4) show my Rose garden the third year after planting. In 1923 there was not a Rose on the place. The paths were formed and sown down with grass seeds and now provide a good, green carpet. Such paths would not be advisable in all gardens, but I think they give the Roses and all flowers in general a better effect. On both sides of the paths I planted a collection of Roses, edged with Viola Princess Mary.

The Rose trained on the support in the forefront of the Rose garden picture (Fig. 3) is Pax, a hybrid Musk, with pure white, semi-double flowers that are much admired for the sake of their musk perfume. This is a favourite Rose of mine; it grows too strongly for a bush and not rampant enough for a climber, but when established it gives beautiful sheaves of flowers. This variety was raised by the late Rev. J. H. Pemberton, and is practically perpetual flowering, producing its flowers in large, branching clusters.

On the left hand of Pax is Climbing Liberty, but unfortunately, the flowers do not show up well; this charming sport of a very popular variety grows very freely with me.

Where the walks cross there are two plants of Yvonne, a Wichuraiana hybrid sent out in 1921; the flowers are a charming soft shade of pink, deeper in the centre and yellow at the base these are carried in large trusses and are sweetly scented. This variety has won the Cory Cup for the best climbing Rose.

Paul's Scarlet Climber, vivid scarlet, I place first on the list of climbing sorts. It carries large trusses of semi-double blooms, and without doubt it is the most effective climber in my garden, growing vigorously and flowering with great profusion.

The second illustration (Fig. 4) shows Lady Godiva by one of the cross paths. This is a very desirable Wichuraiana climber with salmon-pink flowers. It is very attractive and a good grower, but not quite so rampant as some of its family. Below this, on the left, is climbing Ophelia, quite an acquisition, and when the flowers are half open they are faultless, while the fragrance is wonderful. On the right of this cross path, I have climbing Gardenia, Albéric Barbier and Léontine Gervais, all making marvellous growth and of which I hope to send you photographs another season.

At the present time I am planting the front rows of my Rose borders with a collection of Polyantha Roses—Coral Cluster, glowing coral; George Elgar, yellow; Jessie, bright red; Yvonne Rabier, white; Maman Turbat, shaded peach; and Rodhatte, clear cherry-red, and finishing off with variegated Arabis—this last, when grown in tufts or as an edging, is very effective. *John Butler, Rose Cottage, The Moors, Kidlington, Oxon.*

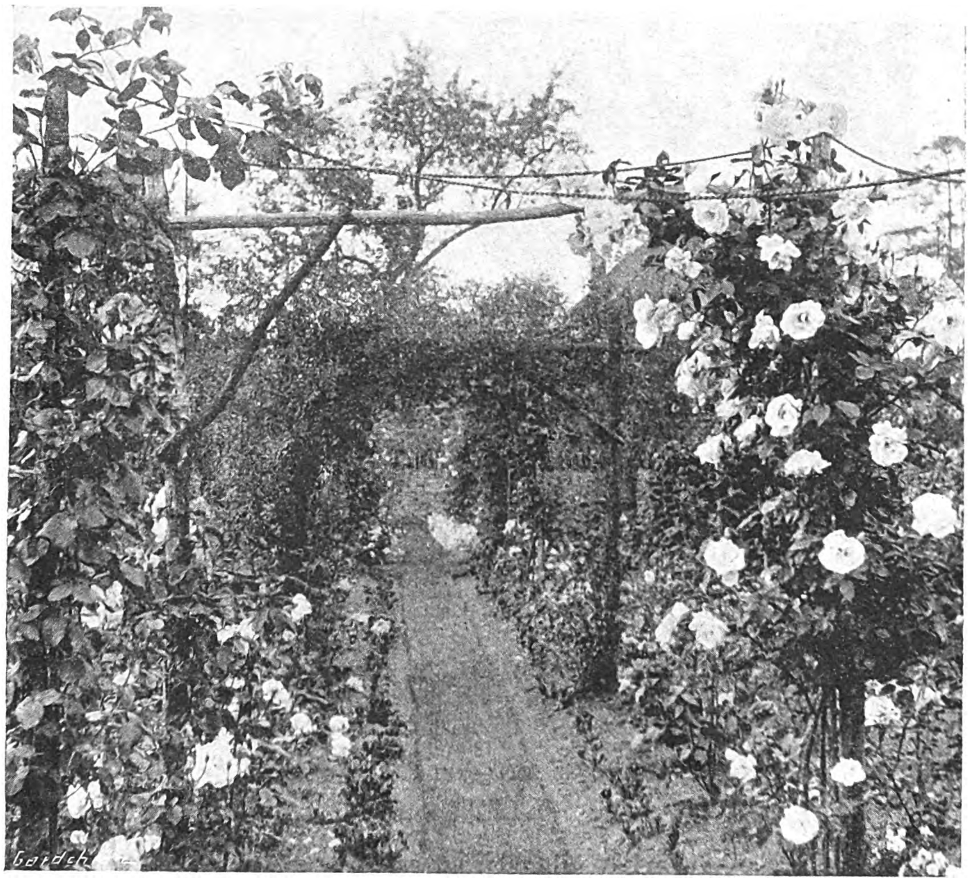


FIG. 3.—THE ROSE GARDEN PATH AT ROSE COTTAGE, KIDLINGTON, OXFORDSHIRE.

IRIS GARDEN.

IRIS ORIENTALIS SNOW QUEEN.

ACCORDING to some, Iris orientalis is a distinct form of the elegant I. sibirica, with larger flowers, broader leaves and one that generally grows about two-and-a-half feet high. It is a very beautiful Iris, but it has been somewhat eclipsed in the estimation of growers by the introduction of two varieties, for which, I believe, we were indebted to the late Mr. Peter Barr, who was responsible for their introduction in 1902.

The two varieties in question are Blue King, a very handsome Iris of good colour, and the subject of this note, I. orientalis Snow Queen. That the latter is a plant of superior beauty may well be concluded from the fact that it received a First-Class Certificate from the Royal Horticultural Society.

It is of bold, yet graceful habit, and in favourable conditions, will attain a height of three feet. Like I. sibirica and its other allied forms, Snow Queen is a lover of moisture and is finer by the water-side or in a moist border than in ordinary soil. It has large flowers of beautiful ivory-white, with broad falls, and a large sized plant with a number of expanded flowers is truly handsome.

I. Snow Queen is absolutely hardy and a marked ornament to any garden. It may be increased by division. Possibly, it may come true from seeds, but my plants have never produced ripe seeds for sowing. Planting may be done in autumn or spring. *S. Arnott.*

ORCHID NOTES AND GLEANINGS.

DECIDUOUS CALANTHES.

ALTHOUGH the number of species of Calanthe suitable for horticultural purposes is limited, the genus is of especial interest owing to the many beautiful hybrids that supply an uninterrupted succession of flowers throughout the winter.

No warm-house Orchid is more universally cultivated, and probably these plants are grown in more gardens than any other member of this most beautiful family of plants.

The species and hybrids comprising this group should be potted so soon as they commence to grow in early spring. In removing the pseudo-bulbs from the pots the exhausted soil should be shaken out and the old roots left about an inch long to hold them in the new compost. The pseudo-bulbs may be potted singly or otherwise; but in the case of rare varieties and the stronger growers, single pseudo-bulbs, potted separately, give the best results. The pots should be well-drained and the crocks covered carefully to prevent the fine soil washing down into them. A suitable compost is made of two-thirds fibrous loam, from which the fine particles have been removed, and one-third Osmund fibre cut into fine portions and mixed with a small quantity of half-decayed Oak leaves and bone-meal, with sufficient sand to render the whole open and porous. The compost should be made moderately firm in the receptacles. Water should be supplied sparingly until the new roots have freely entered the new material, but so soon as active growth has commenced the plants will need liberal supplies of water. When the pots are well-filled with roots, the usual waterings may be supplemented with a little weak liquid manure, but care should be taken that this is not applied at too great a strength, or it may be the means of black spot appearing in the leaves.

As the new pseudo-bulbs approach maturity and the leaves begin to turn yellow, the amount of root-watering should be reduced gradually, until, when the leaves have fallen and the flower scapes appear, only sufficient will be required to keep the flower spikes from drooping. After flowering, water should be withheld altogether and the pseudo-bulbs allowed to become dormant. This is best attained by placing them on a shelf in a dry house where the temperature does not fall below 60°. Many fine stocks of these plants have been ruined by placing them in out-of-way places in a low temperature.

These Calanthes are natives of very hot regions, and require the temperature of the warmest house. During their stage of active growth they should be grown in a light, airy position; they may also be cultivated successfully in a Cucumber or Melon house.

The varieties of C. vestita are so well known that there is no need to refer to them here; also C. Bryan, C. Veitchii and C. Bella; but the varieties of C. Sedenii are not known to the same extent, although the lovely, pure white C. S. Harrisii is incomparable, whilst C. burfordiense is a most beautiful deep-coloured variety.

There are numerous other varieties which at the present time are worth acquiring as opportunity occurs, especially where these plants are grown in quantity to supply flowers during the dullest days of the year.

Such varieties as C. George, C. Kenneth, C. Harold and several others, will add variety even to a select collection. C. Regnieri and its hybrids flower at a later date than C. vestita and its hybrids, thus prolonging the season of flowering well into the spring. *J. T. B.*

THE STAMPERLAND ORCHIDS.

The success in Orchid culture achieved by Mr. Robert Paterson, of Stamperland, a residence which occupies a charming situation in the southern outskirts of Glasgow, is an encouraging event in the history of Scottish horticulture. In the short space of four years he has formed a collection that numbers about five thousand plants, representing choice hybrids and a few varieties of Cypripediums, Odontoglossums, Cymbidiums, Cattleyas and Miltonias, several of which have been distinguished during the past year by awards from the Royal Horticultural Society.

The Cypripedium house, containing between four hundred and five hundred plants, is now the centre of attraction. Prominent among those in flower are C. Golden Sunset and C. Golden Wren in variety, C. Orbus and C. Plutus, C. Our Prince (A.M.), C. Christmas Cheer (F.C.C.), and C. Lucifer (F.C.C.). Another group includes outstanding specimens in C. Artifix (A.M.); C. Sir J. M. Barrie has a shapely flower with a dark centre and white margin; C. Maisie is meritorious, while C. Odin and its varieties are numbered among the best. A few plants were still in bud at the time of my visit.

In the adjoining house there are over one thousand specimens of Odontoglossums, of which forty or fifty were in flower, but the plants gave promise of plenty of bloom later. Of those flowering, O. Pyramus commanded attention with its graceful spike of fourteen wine-coloured flowers. O. Omega, dark purple, with blotched lip, was also conspicuous, and part of the staging was occupied by a big batch of seedlings in different stages, from tiny plants up to those of flowering size. There were several O. crispum of the Premier type, as also is the variety Priscilla, which received an Award of Merit in London. A third house is devoted to Cymbidiums in healthy condition. Some of Mr. Paterson's best Orchids are to be found in the fourth house, containing the Cattleyas and Miltonias. Here the effects of the weather were reflected in several of the blooms, a recent dense fog experienced at Stamperland having done a lot of mischief to the Cattleya flowers. Among the outstanding examples, Cattleya Fabia alba, C. labiata, Laelio-Cattleya Meuse, L.-C. Sargon, L.-C. Queen Mary, and L.-C. Schröderae were fine. The Miltonia collection is probably the smallest of the lot, but what is lacking in numbers is made up by the quality of the hybrids, several of which have been honoured by the Orchid Committee of the R.H.S. M. Lycaena and M. Lucie, both Stamperland varieties, were awarded the F.C.C.

The labours of the past and the hopes of the future are centred in the seedling house where hundreds of seedlings in different stages of growth are accommodated. *J. Y.*

INDOOR PLANTS.

BEGONIA LA PATRIE.

(See Coloured Supplement Plate.)

This hybrid Begonia was raised by Messrs. M. V. Lemoine and Sons, Nancy, and was exhibited by them at the meeting of the Royal Horticultural Society, on January 12, 1909. After the Floral Committee, on that occasion, granted it an Award of Merit, there was a notice of the plant, with an illustration, in *The Gardeners' Chronicle* of January 30, 1909, p. 75, Fig. 42. The parentage of this winter-flowering Begonia was given as B. socotrana crossed with a variety of B. Pearcei, the latter a yellow-flowered Andean species, and the progenitor of the yellow-flowered varieties of the present-day race of tuberous-rooted Begonias, its beautifully marked foliage being still in evidence in the present-day yellow-flowered varieties.

The seed parent, B. socotrana, is, of course, the parent of the two sections of winter-flowering Begonias, which are so important for floral decoration during the winter months, viz., the Gloire de Lorraine varieties, the original Gloire de Lorraine being also raised by M. V. Lemoine. The other winter-flowering set resulted from crossing B. socotrana with varieties of the tuberous-rooted Andean species, the original work being carried out by the late Mr. John Heal when with Messrs. James Veitch and Sons, Chelsea.

Begonia La Patrie is, in general appearance, not unlike some of the Gloire de Lorraine varieties, being of a somewhat compact habit of growth, with stiff, closely-bunched inflorescences of rose-pink flowers. Although one of the parents, B. socotrana, makes resting buds, and the other, B. Pearcei, is tuberous-rooted, the hybrid makes neither resting buds nor tuberous roots, in this respect resembling most of the other winter-flowering varieties; in fact, it closely resembles the Gloire de Lorraine group in its general appearance, habit, and cultural requirements, as it is propagated in the same way, either by means of leaf cuttings or young, basal shoots; in short, it should be accorded the same treatment in every way as the Lorraine group.

For some reason or other, Begonia La Patrie was never largely grown, and at the present time it seems almost to have fallen out of cultivation, which is a great pity, from the scientific as well as the garden standpoint; but as both parents are known and are in cultivation, it should be an easy matter at any time to reproduce the hybrid.

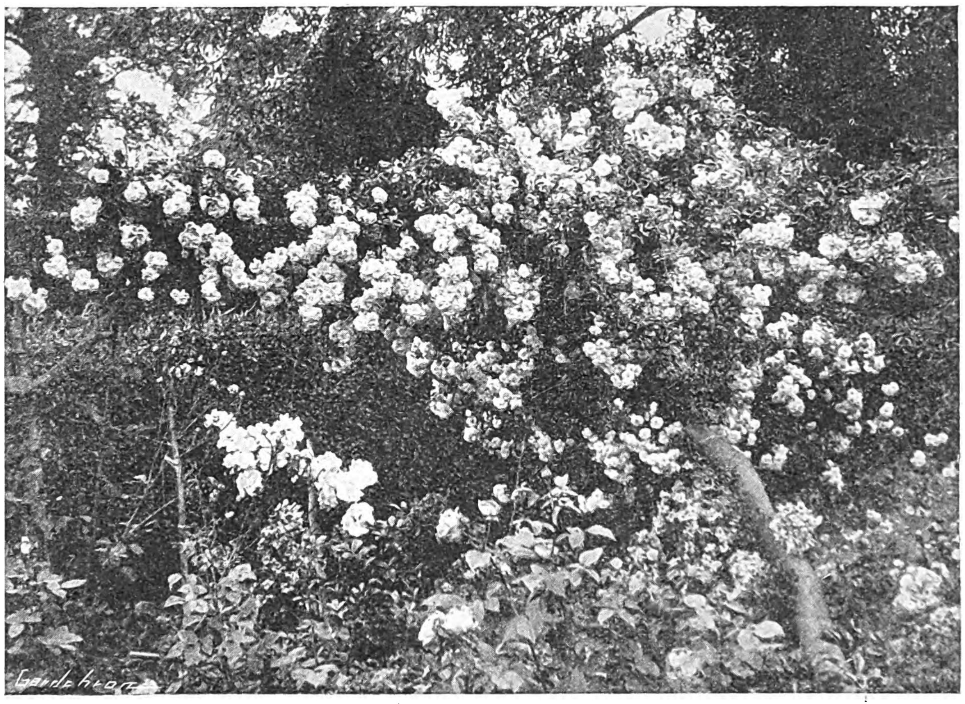


FIG. 4.—ROSE LADY GODIVA AT THE ROSE COTTAGE, KIDLINGTON, OXFORDSHIRE (see p. 8).

WINTER-FLOWERING BEGONIAS.

Begonias of the Gloire de Lorraine type will continue to flower for a long time, but if not already done, a number of plants should be set aside for stock. For this purpose they should be partly cut back and be kept somewhat drier at the roots than hitherto. When young basal shoots develop they should be secured for cuttings while about three inches in length; some cultivators contend that the best results are obtained from leaf cuttings; personally, I have never found any difference, and much quicker results are obtained by means of suitable growth cuttings.

The other section of winter-flowering Begonias resulting from crossing the tuberous-rooted varieties with B. socotrana and represented by such fine varieties as Optima, Exquisite, Fascination and many other fine single- and double-flowered varieties, require very careful management when out of flower, as that is the most difficult and critical period of their cultivation.

Every effort should be made to retain their foliage for as long as possible, and to attain this end very careful watering is necessary. On no account should they be given an access of water at the roots, rather keep them on the dry side. It is a great advantage if they can be stood on a solid bed of moisture-holding material, which, if kept damped regularly, and the spaces between the pots syringed, will obviate the need of much watering.

During this period, a temperature of between 50° and 60° is most suitable. With careful management of the plants most of the shoots and foliage will be retained until they commence to throw up fresh shoots from the base during April. In this way growth should be sufficiently advanced for securing cuttings during May and June. In any case the plants should never be dried off completely as this usually proves fatal, especially with such varieties as The Gem, Ideala and Elatior. At Kew, Optima also proves troublesome, although cultivators in the country, where more favourable conditions obtain, find no difficulty with it. With all the varieties it is wise to keep ample stock, as the losses are often heavy, especially with some of the weaker-growing varieties.

PENTAS CARNEA.

This pretty and useful plant was at one time common in gardens but is now seldom seen. It may be had in flower more or less all the year round, but is specially useful during the autumn and winter. It will flower freely in a house having an intermediate temperature. This Pentas is easily propagated at almost any time and cuttings will root readily in a warm case. To obtain plants for flowering during the autumn and winter it is best to propagate stock during the spring and stop the plants several times during the growing season to promote a bushy habit. *J. Coutts.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

MR. F. KINGDON WARD'S NINTH EXPEDITION IN ASIA*

V.—ON THE NAM TAMAI.

AT the cane suspension bridge, the Nam Tamai is 3,000 feet above sea-level. It is a swift river of considerable size, with many rapids and cascades; yet, after following it up for six days, we were little more than 4,000 feet above sea-level, and the character of the vegetation showed no great change; we were still in the jungle. However, the temperature of the Nam Tamai was only 54°, very much less than that of the Mali, so that there was no doubt as to its being snow- and ice-fed; we had only to follow it right to its head to be amongst the snow mountains.

Coolies having assembled in force at the bridge, we pushed on next day (April 30, 1926), without a halt, continuing for three days. We were still in an almost flowerless forest. True, a cream-flowered Acacia was in full bloom, also one or two species of Oak, and an Elaeocarpus, a dainty thing, whose fringed, white flowers are the resort of a multitude of insects. The parts of the flower are very cunningly fitted together. At the base of each petal are two small pockets, formed by an infolding of the margins. The bottom of each pocket fits over a protuberance of the disc, and each sepal has a double groove, into which the pocket on either side of it is tucked. The disc secretes honey into the pockets, and there insects probe for it; the flowers hang downwards in order to protect the pollen from rain. The whole contrivance is admirable, and on a fine, sunny day one can hear the hum of insects round an Elaeocarpus in bloom yards away, bees and beetles being the most constant visitors.

Very beautiful was a species of Oak now breaking, with plumes of wine-purple foliage, through which the light shone redly. Alder now appeared for the first time, and after a few days, we saw, high up on the topmost ridges, a few straggling Conifers. Palms, except the climbing Calamus, which was abundant up to 5,000 feet, and a rare Sago Palm, had ceased to exist; but there were leafy seas of Bamboo, while Tree Ferns, climbing Aroids, Zingiberaceae, giant Musa, and other hall-marks of the Indo-Malayan flora were still plentiful. Yet one noticed a difference. There were no Dipterocarpaceae here, for instance, and the number of species of Ficus had dwindled appreciably.

Orchids, both epiphytic and terrestrial, were numerous, and of many different genera, and I was able to make a good collection; of the first 170 species of plants collected after leaving Fort Hertz, twenty-seven were Orchids. But there were a far greater number out of flower.

The forest came right down to the rocks in the river bed, leaving only a narrow belt in dispute between high and low water marks; and it was interesting to note how the forest gradually encroached as the river ploughed its bed deeper. First of all, Moss and Lichen formed a veneer over the boulders which, though they might be submerged for a time, were not severely hammered by the force of the spate. A little higher up, where there was less danger, a species of Fern, tussocks of grass and colonies of Equisetum had gained a footing, and, profiting by their example and presence, here, too, a few annual flowering plants, and Compositae, and also a species of Valeriana, were established; most of these had flowered and seeded before the risk of inundation threatened. Then came an herbaceous border of Impatiens, followed by a narrow belt of shrubs—Rhododendron indicum sometimes, a curious species of Ficus, and a Pyrus, with clumps of Spiraea; and back of that the jungle. All this in a belt perhaps twenty feet wide and a dozen feet in depth.

The valley of the Nam Tamai is, for this country, fairly well populated. Nevertheless, we had to halt on May 3, to collect a fresh relay of coolies, and the halt was prolonged a second day before we got the full number. We were then able to do another two marches before the coolies' food gave out and they had to return. There had been a serious famine during the previous two years, and many of the villages were deserted, either because the inhabitants had all died of disease, or because they had fled into the jungle to live on roots and berries.

This famine had been, if not entirely caused by, at least greatly aggravated by the flowering of the Bamboos, which had supported millions of rats. When the Bamboo seeds were all eaten, the rats migrated into the clearings and devoured the crops, while the people starved until the next harvest. They can carry on under such appalling conditions for one year; they are used to it. To a certain extent they can carry on, though dying off by tens and twenties, especially old people and young children, through a second year of famine, living in the jungle; but if there is a famine this year, God help them. At one time it looked as though there would be, for it rained and rained in April, when it should have been fine to enable the people to burn the jungle and plant the spring crops. And then, at the end of April, when the situation was becoming desperate, came a week of fine, hot weather; the new clearings were made, the crops sown, and the situation was saved.

As we approached the Seinghku-Adung confluence at the top of the Nam Tamai, wayside flowers began to appear in the shade of the forest or in old clearings now covered with secondary growth. In the forest was a white-flowered Anemone, in the open the path was rimmed with misty, blue clouds of Forget-me-not, and purple Geranium, while damp ground was sheeted with a butter-yellow Ranunculus, and colonies of small, perky Mimulus. In the thickets Luculia gratissima was in fruit, and in places Bracken appeared. These, together with one or two species of Arisaema, were all the indication we had as yet of approach to a more temperate climate; and though at the end of the third day's march we could see a snow-clad ridge wedged into the upper end of the valley, where the river split, that was still a long way off. Massive thickets of Bamboo and two thousand feet of heavy jungle separated us from a few clipped Fir trees, which peeped down at us from the more windy ridges, outposts of the alpine forest. They rose up there against the sky-line as though jealously guarding the approaches, ready to give warning of our assault upon their self-determined territory; but they only lured us on the more eagerly.

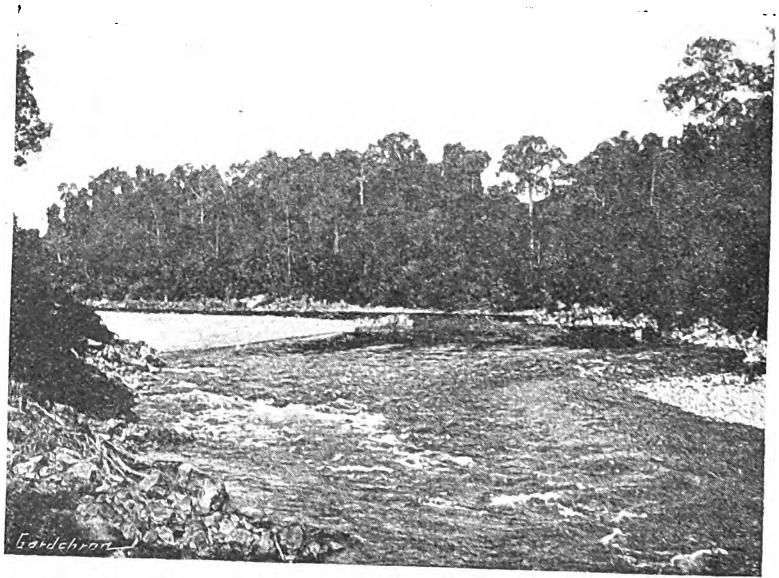


FIG. 5.—WESTERN IRRAWADDY AND JUNGLE.

Rhododendron dendricola was a common epiphytic shrub all up the valley. Down here it was over, but at 5,000 feet it was still in fine bloom. I cannot quite reconcile this Nam Tamai plant with true R. dendricola, described from a specimen collected in the Htawgaw Hills, two hundred miles away; it seems to be a local variety. The differences, however, are slight and technical. The Nam Tamai variety often has a distinct pink flush, especially in bud, due to broad bands of purple on the corolla ribs showing through the white inside; the corolla is only slightly lepidote at the base. We had to halt on May 3 and 4, and again on the 7th. Three times we crossed the river by flimsy cane bridges, finishing up on the right bank. The weather during the first half of May was very unsettled, and a lot of rain fell at a time when it is still fine and dry in Burma proper; but we were spared the intolerable hot weather of Burma in May, and in any case it hardly ever is fine for any length of time at the headwaters of the Irrawaddy.

There was a certain amount of cultivation up the Nam Tamai valley. The jungle is cut down—though big trees are often left standing for lack of means to fell them—and after a few days of fine weather, set on fire. Then the charred wood is cleared away, the crops (Maize, Colocasia and Buckwheat chiefly) sown, and after the harvest the clearing is abandoned, being already overgrown with weeds. These are gradually replaced by thickets of grass, Rubus, Alder, and many other plants, many of the original trees not destroyed by fire, sending up suckers; and in a few years a dense growth, more difficult to penetrate than the virgin jungle, covers the ground. Many years must elapse before the same ground can be cleared and sown a second time, and so villages are rarely permanent, and the jungle tribes become semi-nomadic.

---

* The previous articles on Mr. Kingdon Ward's Ninth Expedition in Asia were published in our issues of August 14, 28, October 9, and November 20, 1926.

The forest trees in the valley are tall and unbranched below, just smooth white pillars expanding into a ball of green at the summit. There are no plank-buttress roots at the base, and they are not greatly burdened with epiphytes. Very different are the trees high up on the flanks and ridges of the mountains, which live in the perpetual mist and drizzle. Here they are neither tall nor stately, but twisted and gnarled, and of much greater girth, upheld below by plank-buttress roots and upholding in turn another world of vegetation—epiphytic Orchids, Melastomaceae, Ericaceae (Rhododendron, Agapetes, Gaultheria, etc.), Gesneraceae (Aeschynanthus, etc.), climbing Aroids and large Ferns. And as we travelled north-westwards, ascending slowly, it was refreshing to note the spring colours of the more deciduous forest replacing the dead monochrome of the jungle; shrill yellows, which set one's teeth on edge, bold bottle greens, furtive greens with a hint of yellow, sage greens, purples, bronze and red, an ever changing kaleidoscope of colour.

After the fifth march up the Nam Tamai, the path, which so far had been quite good, degenerated into the usual jungle track, and on the sixth day (May 8), proceeding sometimes over the boulders in the river bed, sometimes swallowed up in the forest above, we presently reached the junction of the Seinghku and Adung rivers, the former from the north-west, the latter from a little east of north. Crossing the violent Seinghku by a very rickety cane bridge, we camped on a knoll in the angle between the two rivers. We were now 4,000 feet above sea-level, but there was no cessation of the jungle; and though we were at the very foot of the mountains which rose above us for thousands of feet on every side, I soon found that they were far too steep to climb, even had they not been clothed with impenetrable jungle. As for the rivers, they were both roaring cataracts. *F. Kingdon Ward.*

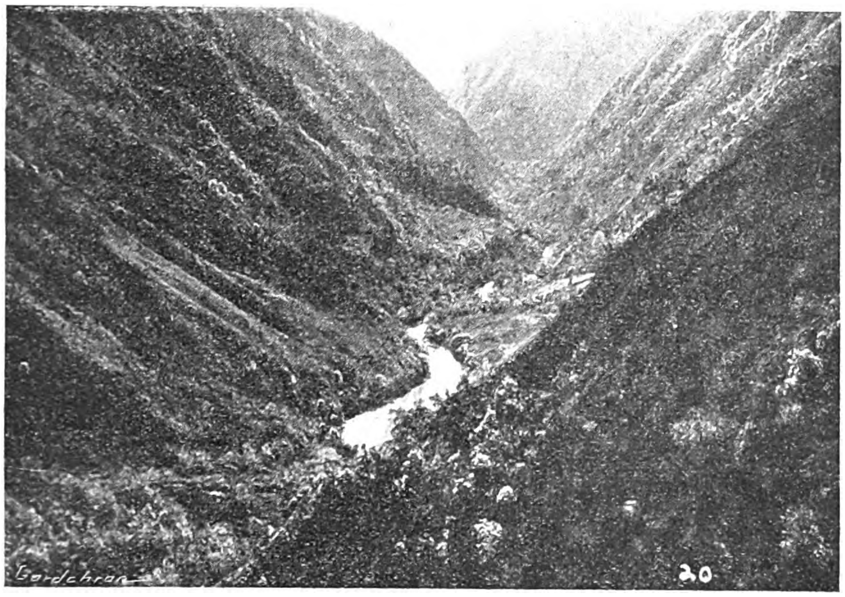


FIG. 6.—ADUNG RIVER ON THE UPPER NAM TAMAI.

CONTRACTS FOR THE PURCHASE OF LAND.

It is often desired to make a contract either for the purchase or sale of a small piece of land without calling upon the professional assistance of a solicitor, and when the bargain has been made, the parties to it will probably want to get it settled at once without waiting for their respective solicitors to deal with the matter, or if one of them wishes his solicitor to see the contract, then he will want to know how to word it, so that it can be submitted for his approval. If the parties wish to do this, then how should they set about making such a contract?

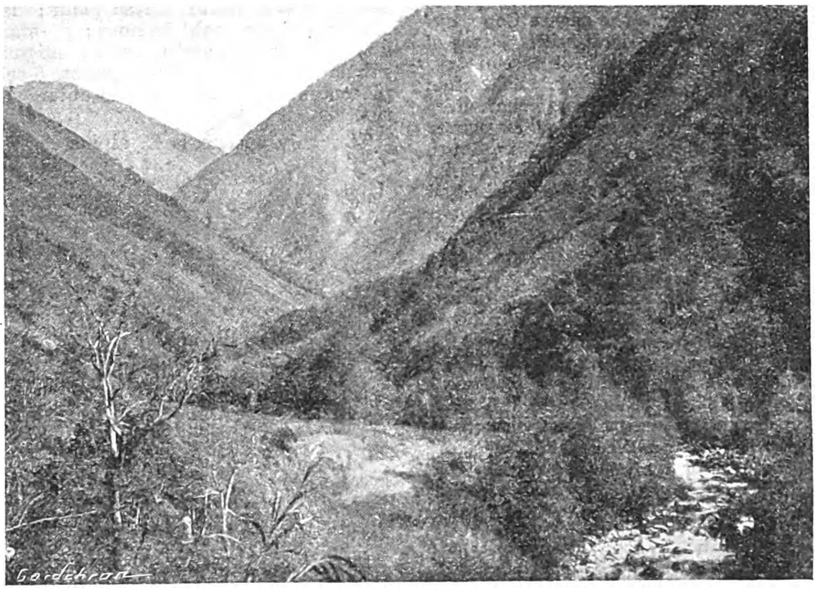


FIG. 7.—NORTH EAST FRONTIER OF BURMA.

We will assume that the sale is the result of private bargaining, for if the sale has taken place at a Public Auction, the parties can generally obtain professional assistance on the spot. In the first place, of course, there must be a clear offer and acceptance, and the consent of either party must be freely given and not induced by any fraud or mistake, and these rules apply whether the contract is for the sale of land or goods.

In order that the contract may be enforceable it will have to be in writing and a copy made so that both buyer and seller may each have a copy signed by the other. Since it is to be in writing, what must the writing contain? It must contain a proper description of the buyer and the seller, a description of the piece of land which has been sold and the price that has been paid for it.

Moreover, if any special stipulations, such as obligations to fence or the granting of a right of way, have been agreed upon between the parties, these should be set out in the contract, otherwise the party who is to benefit by them may have great difficulty in enforcing them.

If one of the parties does not wish to consider the contract as a "final" contract, but intends his solicitor to settle it for him, then he should insist on the addition of some such expression as: "subject to a proper contract being prepared by the seller's (or buyer's) solicitor," to prevent the conclusion of a complete contract. This is very necessary as a safeguard.

Although it is usually essential that a contract for the sale of land should be evidenced by writing, this must be qualified to a certain extent, for on some occasions a verbal contract can be enforced by one of the parties. Thus, if one party refuses to abide by a verbal contract, if the other can prove that he was prevented from obtaining the necessary written evidence by the fraud of the first party he should be able to enforce the contract although he has no written evidence of it; or again, if in consequence of a verbal contract one of the parties has gone into possession of the land, then the verbal contract will be binding. So that if B has verbally agreed to sell some land and premises to A, and A goes into actual possession and improves the property, it would be inequitable for B to refuse to implement his bargain on the ground that a sufficient written memorandum was lacking. The Courts are, therefore, given power to compel him to carry out any such bargain.

The taking possession must, of course, demonstrate that some contract relating to the land has been made, for if a man is already in possession of the land as a tenant, he cannot rely on the fact to prove an agreement to sell the property; his possession is explained by the fact that he is there as a tenant, and there is no necessity to show that a contract for sale has been made to explain why he is in possession of the land. *Harold Sharman.*

MESEMBRYANTHEMUM.

(*Continued from p. 229, Vol. LXXX*).

As a delay has been caused in the continuation of my account of this group by the want of sunshine experienced this year, delaying the flowering of some new species that I wish to include under the genus Glottiphyllum, which follows next in the sequence, and which are only now flowering, I take the opportunity to publish below a key to some new genera, and descriptions of new species belonging to the genera Conophytum, Lithops, etc., already dealt with. Most of them have not yet flowered in this country, but as the size, shape, surface and coloration of the growths are the principal characters that distinguish many of these peculiar plants, and as names for them are wanted in South Africa also for many that will soon be distributed by Monsieur Fr. De Laet, I have deemed it advisable not to wait until they all flower before describing them, proposing to publish descriptions of their flowers at a future time; meanwhile the names can be used.

Also I would like to correct an error in the key to the genera published in *The Gardeners' Chronicle*, 1925, vol. LXXVIII, p. 433, where the genus Conicosia (see under the coupled paragraphs Nos. 27 and 28) is stated to have alternate leaves. Haworth stated this to be the case. After having examined living adult plants, I came to the same conclusion, and therefore accepted this view for the purpose of my key, but having this year raised a few plants of this very distinct genus from seeds and watched their development, I find to my surprise that the leaves are really all opposite, although by a peculiar mode of growth as the plant develops they point all ways and form a large, dense tuft in which they appear to be arranged alternately and are very long.

The following is a key to some new genera, founded partly upon new discoveries and partly upon old species that I had either not seen or of which I had only incomplete material when making my previous key, and although I then believed them to belong to new genera, I preferred to wait until actual material was available for examination before founding genera upon them, hence their omission from the previous key. Numbers are added to indicate their approximate position in the sequence adopted, and I have also indicated the type species of each genus. Full descriptions will follow as each genus is dealt with in its sequence.

KEY TO NEW GENERA.

1. Annuals; leaves opposite, flat; flowers solitary; pedicels 2–6 inches long; calyx unequally 5-lobed; petals free, slender, passing into staminodes; capsule expanding its valves when wetted; placentas on the floor of the cells. 2

Perennials; leaves opposite, not flat; flowers solitary; pedicels under 2 inches long or flowers sessile; calyx 5–6 lobed; petals free; capsule expanding or separating its valves when wetted; placentas on the floor of the outer wall of the cells. 3

2. Leaves petiolate, with a lanceolate or ovate flat or concave blade, glabrous; stigmas 10, filiform; ovary inferior, 10-celled; capsule with 10 valves and cells; expanding-keels of the valves central, more or less contiguous at the upper part and separated at the base or subparallel throughout, entirely adnate without free tips or wings; cells without cell-wings or tubercles; seeds globose, smooth.

Species 2, A. Pillansii, N. E. Br., the type of the genus, and A. helianthoides, N. E. Br. (Mesembryanthemum helianthoides, Ait.) **27b Apatesia.**

Leaves linear to narrowly oblanceolate, pubescent; stigmas 12–14; ovary nearly or quite superior, 12–14 celled; capsule with 12–14 valves and cells; expanding keels of the valves arising quite at the margins of the valves and inflexed so that their edges are nearly or quite contiguous, and ending in free diverging awns; cells narrow, roofed for half their length, without a tubercle at the opening; seeds flattened, D-shaped, smooth.

Species one, M. Candollii, N. E. Br. (Mesembryanthemum Candollii, Haw.) **27a Macrocaulon.**

3. Capsule small and thin, separating into 5 valves or parts with the cell-partitions adhering to the centre of each part and separating from the central axis so that the ellipsoid, smooth seeds are liberated; a very small, tufted plant; leaves semiterete or subtrigonous; stamens about 25, in one series, erect; stigmas 5, subulate; ovary partly superior, 5-celled; placentas at the base of the outer wall of the cells.

The only species is E. alpina N. E. Br. **39a Ectotropis.**

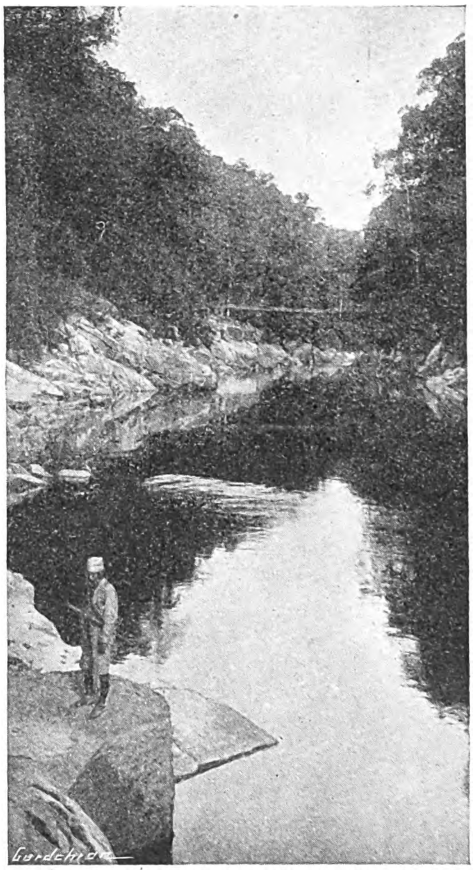


FIG. 8.—A DEFILE ON THE NAM TISANG.
(see p. 10).

Capsules not thin and provided with expanding-keels to their valves, which expand when wetted; stamens numerous in many series. 4

4. Stamens erect and evident. 5

Stamens concealed under a mass of inflexed petals and staminodes; a shrub; leaves with the acute edges and keel finely lacerate-toothed; flower 2 inches in diameter, purple; stigmas 10, very small; ovary 10-celled; valves of the capsule ascending-spreading when expanded and not closing after once expanding, their expanding-keels diverging and ending in awn-like points; cells roofed with rigid cell-wings, without a tubercle at the opening.

The type of the genus is S. lacera, N. E. Br. (Mesembryanthemum lacerum, Haw.) **41a Semnanthe.**

5. Stigmas and cells of the ovary and valves of the capsule 5; dwarf plants forming clumps about 3-3½ inches high; leaves trigonous, tapering to an acute apex as viewed from the face; with 1–2 small teeth on the keel at the apex; stigmas plumose; ovary inferior; valves of the capsule suberect or somewhat inflexed when wetted, with diverging, expanding-keels ending in awn-like points; cells roofed with rather stiff cell-wings and the opening nearly closed by a large, compressed tubercle.

The type species is A. bellidiflorus, N. E. Br. (Mesembryanthemum bellidiflorum, Linn.) **34a Acrodon.**

Stigmas and cells of the ovary and valves of the capsule 8–10 6

6. Leaves with several slender flexible teeth along the edges and keel, velvety-puberulous to the touch and dotted; calyx 5-lobed; stigmas 9–10, subulate; ovary inferior; valves of the capsule reflexed when expanded, with parallel expanding-keels toothed on their edges and ending in free membranous tips; cells roofed with stiff cell-wings and the opening nearly closed by a large tubercle; seeds compressed-ovoid, smooth.

The only known species is O. Marlothii, N. E. Br. **40b Odontophorus.**

Leaves quite entire and smooth at the edges and keel, glabrous, not dotted. 7

7. Shrubby plant 1–2 feet high with very distinct internodes. 8

Plant 3-4 inches high; leaves stout, united for some distance at the basal part, somewhat compressed, bluntly keeled, not dotted; calyx 5-lobed; petals passing into staminodes; filaments of the stamens bearded; stigmas 10; capsule very shallow; expanding-keels very broad and closely contiguous, quite covering the basal half of the valves, convex (not acutely keeled) on the top, produced into a small, stiff, obtuse wing at the apex; cells open, without a tubercle; seeds compressed, triangular in outline, smooth.

The type species is Z. suppositum, N. E. Br. (Mesembryanthemum suppositum, L. Bolus). **39b Zeuktophyllum.**

8. Erect shrub; leaves but slightly united at the base, not stout; semiterete; flowers at first terminal, later becoming apparently axillary all along the branches; 15 lines in diameter, yellow; calyx 6-lobed; stamens numerous, erect; stigmas 8–9, plumose; ovary inferior, 8–9-celled; placentas on the outer wall of the cells.

The type of this genus is M. mollis, N. E. Br. (Mesembryanthemum molle, Ait., not of any other author). **40a Malephora.**

N. E. Brown.

(*To be continued*).

NOTE FROM SOUTH AFRICA.

HARDINESS OF BOUGAINVILLEA GLABRA.

Reference was made in your issue of September 25 last to the hardiness of Bougainvillea glabra and Plumbago capensis. I was very interested to know that these plants will withstand up to 10° of frost or more when well established.

Here, in the Cape, they are two of our hardiest plants and withstand a great deal of hardship, both from drought and cold winds, as outdoor creepers and hedges respectively. Further north I have seen Bougainvillea growing in such towns as Kimberley, where severe frosts are experienced occasionally and where the winters are always very cold.

I can therefore seen no reason why both these plants, once they are established, should not survive your winters out-of-doors in a sunny, warm aspect in the south of England. *W. Bowles, Rosebank, Cape Province, South Africa.*

A SHORT HISTORY OF SPRAYING MACHINERY IN ENGLAND.

WITH the increasing danger to cultivated plants from the attacks of insect pests and fungous diseases, there has arisen an urgent need for more efficient spraying machinery to deal with them. The French and American phytopathological services have been until comparatively recent years far ahead of the British service in the matter of adopting new remedies and encouraging manufacturers to take up the production of apparatus for the application of wet and dry insecticides and fungicides to plants.

Control methods by means of machinery are of fairly recent date, and it is only during the last few years that there has been a great demand for spraying apparatus of all kinds.

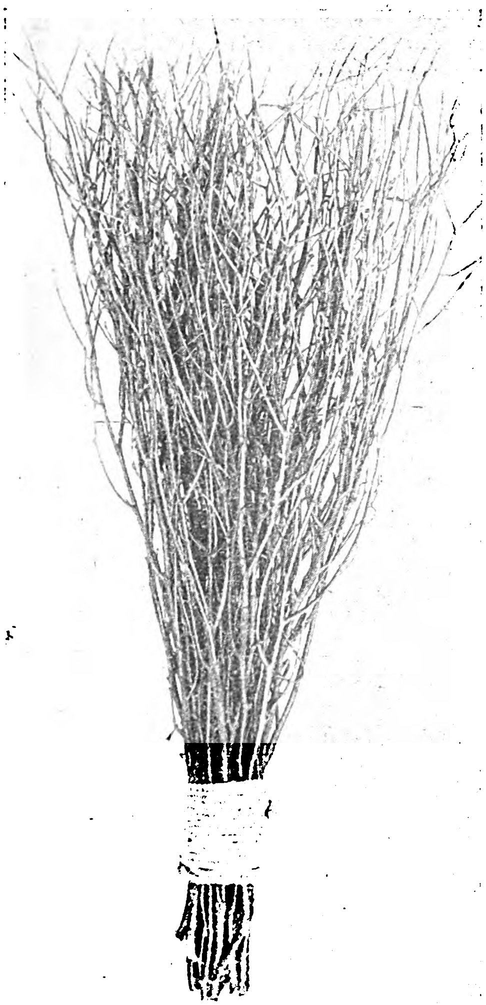


FIG. 9.—WHISK FOR SPRAYING, MADE OF BIRCH OR HEATHER.

Spraying machinery may be classified according to the source of power as follows:—(1) Hand Power—Whisks, syringes, powder bellows, bucket sprayers, hand-worked knapsack sprayers, and hand-lever pumps attached to barrels and tanks; (2) Compressed air—Pneumatic sprayers; (3) Traction Pumps—Horse-drawn Potato and Hop sprayers; and (4) Power Sprayers—oil and gas engines of varying horse-power.

In reviewing historically the evolution of spraying machinery in this country it will be found that the earliest and simplest device for applying liquids to the foliage of plants was a whisk made of Heath or Birch twigs (Fig. 9). Lodeman[*] mentions this device as being in use in France as late as 1882 for the purpose of applying Bordeaux mixture to vines. An early account of this device is given by Hitt[*] in 1758. The author remarks that when caterpillars are seen on wall fruit trees "I have prepared a brine the same as for washing of walls at the time of pruning, and therein dipt a brush or besom and swept the trees all over; this has destroyed many, by beating some off and killing others." Later (p. 122), he suggests that fire engines be used for treating standard trees.

Joseph Paxton[†], the famous horticulturist, writing in 1833, describes the preparation of a decoction of Tobacco water and Elder shoots for destroying insects on fruit trees, and informs his readers that "the trees sprinkled with a small hearth-brush for two or three weeks will effectually destroy the insects."

Another early method of applying liquids to plants was to sprinkle them with an insecticide through a watering-can fitted with a fine-rose nozzle. Its use was limited, for it could not be employed usefully except on low-growing plants, although Rogers[‡] suggested its use for wall trees and advised a man to stand on a ladder and throw the insecticide on to the trees by means of a fine-rosed watering-pot.

Both the whisk and can methods are extremely wasteful of materials and the next type, that of the syringe, is not much better on account of the poor pressure obtainable, the wastage of material through constant filling and dripping, and the coarseness of the spray due to low pressure and construction of the nozzles. The first type of syringe consisted of a simple plunger working in a tube into which the liquid was drawn by suction. An improvement in the form of a separate intake fitted with a ball valve (Fig. 10) was invented by Read[§]. It was first exhibited at a meeting of the Royal Horticultural Society on August 7, 1821. When charging the type of syringe previous to Read's invention, the water had to pass through the same small holes by which it was discharged, the weight of the lift being considerable, and the time to charge it unnecessarily long.

Syringes are still in great demand in small gardens for applying various washes to plants, and are in constant use in fruit and ornamental plant houses for spraying water on to the foliage and stems. Improvements have been made so that they are now fitted with fine, medium and coarse nozzles attached to an angle-bend adjustment, and a drip-preventer is provided. The different kinds of syringes in these days are legion, whilst many of the older patterns are described and illustrated in the agricultural journals[||] and gardening encyclopaedias[¶].

A further advance was made when a continuous supply of liquid was available. This was affected by arranging a separate intake and air chamber which eliminates loss of time in recharging and provides a constant stream of liquid. This took the form of a continuous-spraying syringe, closely allied to which is the Bucket Sprayer (Fig. 11), a much later introduction than many of the larger types of sprayers. Its mechanism consists of a double-acting pump—sometimes fitted with an agitator—for use with a bucket.

Besides syringing plants against the attacks of insects and pathogenic organisms, there are three other methods which have been adopted for a considerable time; they are "dipping," "sponging," and fumigating, all methods in use at the present time. In 1851, there were two types of fumigators on the market, the hand-worked blower and a larger machine mounted on a one-wheeled carriage, the bellows being operated from a chain-drive off the axle. [¶], [**], [††].

A great advance was made when larger machines capable of holding up to fifty gallons of liquid, were placed on the market. The early types closely resemble the modern tank and barrel sprayers. The container, which held from fifteen to fifty gallons of liquid, was made of tin, copper or wood, mounted on a two- or three-wheeled carriage. A double-acting pump and air chamber provides a continuous stream of liquid, which is ejected through nozzles placed at the end of spraying-arms. This machine was originally called a garden engine, and various types are described by Forsyth[*], Mawe and Abercrombie[†] and McIntosh[‡], and illustrated in the agricultural and horticultural journals of the period[§].

Besides the tank sprayers, there are several makes of barrel sprayers, fitted with hand-lever pumps, which are placed on a farm cart and used for spraying both market garden and fruit crops.

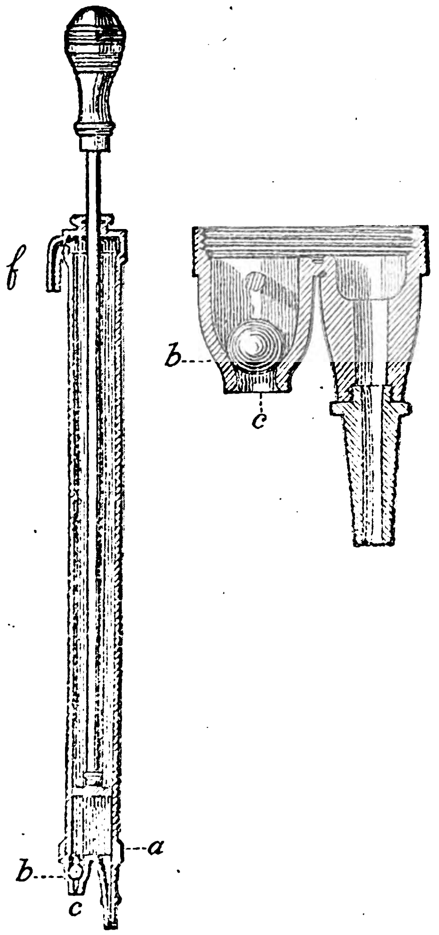


FIG. 10.—SPRAYING SYRINGE FITTED WITH BALL VALVE.

The first knapsack sprayers used in this country were introduced from France in 1891. Their introduction was due to Miss Ormerod[||], the well-known economic entomologist, who arranged with M. Vermorel to send his "Eclair" Sprayer (Fig. 12) to Messrs. C. Clark and Co., Windsor Chambers, Great St. Helens, E.C., who acted as distributing agents for this machine, the original cost of which was £1 15s. 0d.

Miss Ormerod[¶] writing to Dr. J. Fletcher on March 23, 1891, observed: "Last year we did not know where to turn for a proper sprayer; now, on the day before yesterday there was to be a 'contest of sprayers' at the Crystal Palace. I think this shows of itself how the matter on insecticide sprayings has come forward."

---

[*] Lodeman, *Spraying of Plants*, 1908, pp. 54-57 and 181-224.

[*] Hitt, T., *A Treatise of Fruit Trees*, 1758, 3rd. edition, p. 121.

[†] Paxton, J., *Horticultural Register*, 1833, Vol. 2, p. 224.

[‡] Rogers, J., *The Fruit Cultivator*, 1837, p. 384.

[§] *Trans. Horticultural Soc.*, 1824, Vol. V, pp. 488-490.

[||] *Jour. Roy. Agric. Soc. England*, 1891, 3rd. Ser. Vol. 2, Pt. ii, No. VI, pp. 217-256.

[¶] Loudon, *Encyclopaedia of Gardening*, 1850, pp. 546-550.

[**] *The Gardeners' Chronicle*, April 19, 1851, p. 255.

[††] *The Gardeners' Chronicle*, May 17, 1851, p. 319.

[*] Forsyth, W., *A Treatise on the Culture and Management of Fruit Trees*, 1803, p. 367.

[†] Mawe, T., and Abercrombie, J., *Gardeners' Calendar*, 1813, 20th Edt., pp. 294-295.

[‡] McIntosh, C., *The Orchard and Fruit Garden*, 1839, p. 416.

[§] *The Gardeners' Chronicle*, June 2, 1849, p. 352.

[||] Ormerod, E., 14th *Rept. on Observations of Injurious Insects*, 1891, pp. 90-102.

[¶] Wallace R., *Eleanor Ormerod; Autobiography and Correspondence*, 1904, p. 208.

The policy of *The Gardeners' Chronicle* has always been one of encouragement to the grower, and for many years prior to 1891 it had advocated the necessity of following the lead of other countries in the matter of pest control. Commenting on the trial of spraying machines at the Crystal Palace in 1891, this journal * remarks: "After advocating these measures and calling attention to what other countries have done in the matter of insecticides and apparatus for their distribution, it is some satisfaction at last to see the subject practically attended to at home."

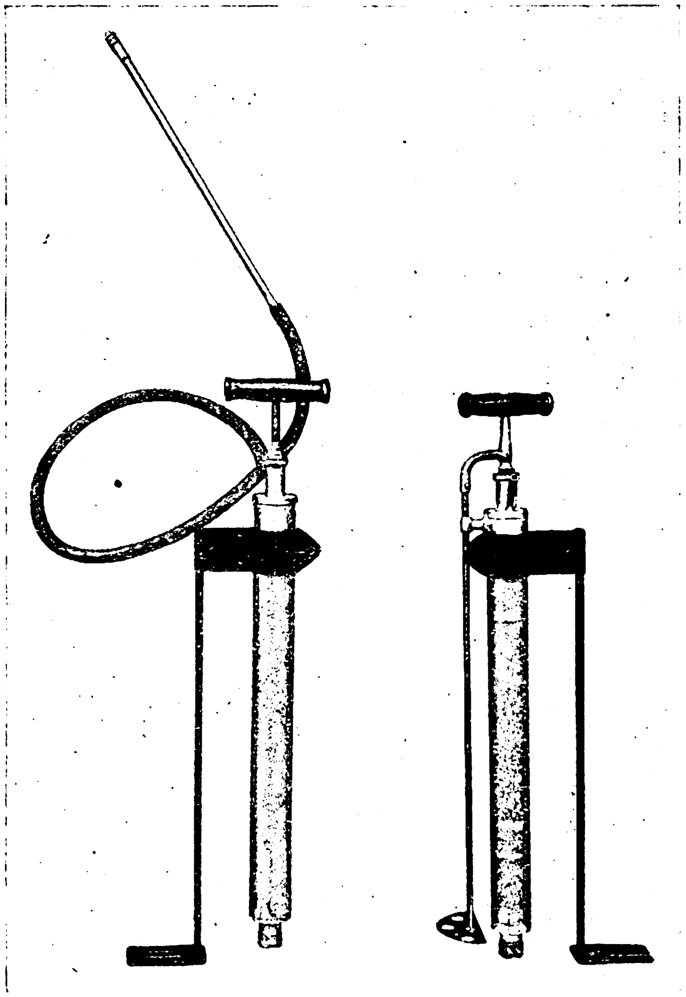


FIG. 11.—TYPES OF BUCKET SPRAYERS; THE ONE ON THE RIGHT FITTED WITH AN AGITATOR

Although the "Vermorel" type of sprayer is worked by hand power, there is a chamber fitted either inside or outside the machine in which air is compressed, with the result that a steady supply of liquid is kept up.

In the early types of horse-drawn machines, the liquid gravitated through main pipes on to revolving brushes which spread the liquid over the plants as the carriage proceeded along the rows. A machine, known as the "Strawsonizer" was adaptable to both liquid spraying and dry dusting. It was manufactured by Messrs. Hornsby and Sons, Spittlegate Ironworks, Grantham, in 1890.

In later machines, by means of a lever pump worked from a crank on the axle, the liquid is pumped from the container into spray "booms" and ejected from nozzles fitted on adjustable arms which enable the wash to be distributed either on to the upper or lower surfaces of the foliage (Fig. 13). The "booms" are jointed so that the overlapping ends can be raised to allow the machine to enter through a farm gate. Another improvement is the adjustable wheels which can be fixed at various points on the axle.

A great advance was made over the Vermorel knapsack sprayer when the pneumatic or compressed-air machines were introduced. They appeared only a few years before the outbreak of war, and have proved themselves of great value in gardens and small orchards. There are three types—the hand machine, knapsack sprayer, and wheeled machine, capable of holding from two to six pints, two to four gallons and ten to twenty gallons of liquid respectively.

Power sprayers were in use in this country in the latter part of the nineteenth century and have improved steadily until at the present time there are few fruit farms and market gardens which do not possess some type of high-powered spraying outfit.

The latest method of distributing insecticides and fungicides to plants is by means of a low-flying aeroplane. This method has been in use for some years in America *. The first record of an aeroplane being used for this purpose in Great Britain was in 1922† when a Cherry orchard in Kent was dusted with a proprietary material (Belumnite) against leaf-eating caterpillars.

Growers might be tempted to think that, as at the present time theyhave nearly reached the goal and, with the extended use of high-powered spraying machinery and aeroplane dusting, the matter of complete pest control is only a matter of time. Such is not the case, however, and the populations of various countries will suffer from scarcity of food material if those who are responsible for controlling the ravages of insect pests do not devise even better and more efficient remedial measures and machinery for applying them.

There are two schools in the ranks of economic entomologists; the old school considers that the chemical control of pests will continue to be the most efficient method, while the new school looks to the elimination of injurious species by the use of their parasitic and predaceous enemies. Time alone will show which method is best, but it would appear safe to prophesy that chemical control of pests will hold the field for many years to come.

My acknowledgments are due to Messrs. Cooper, Pegler and Co., Ltd., 24-26, Christopher Street, Finsbury Square, E.C.2, for supplying the photographs of the Eclair sprayer, bucket pumps and traction machine, and to Mr. F. J. Chittenden, Editor of the Royal Horticultural Society's *Journal*, for permission to reproduce the figure of Read's syringe. *G. Fox Wilson, R.H.S. Laboratory, Wisley, Surrey.*

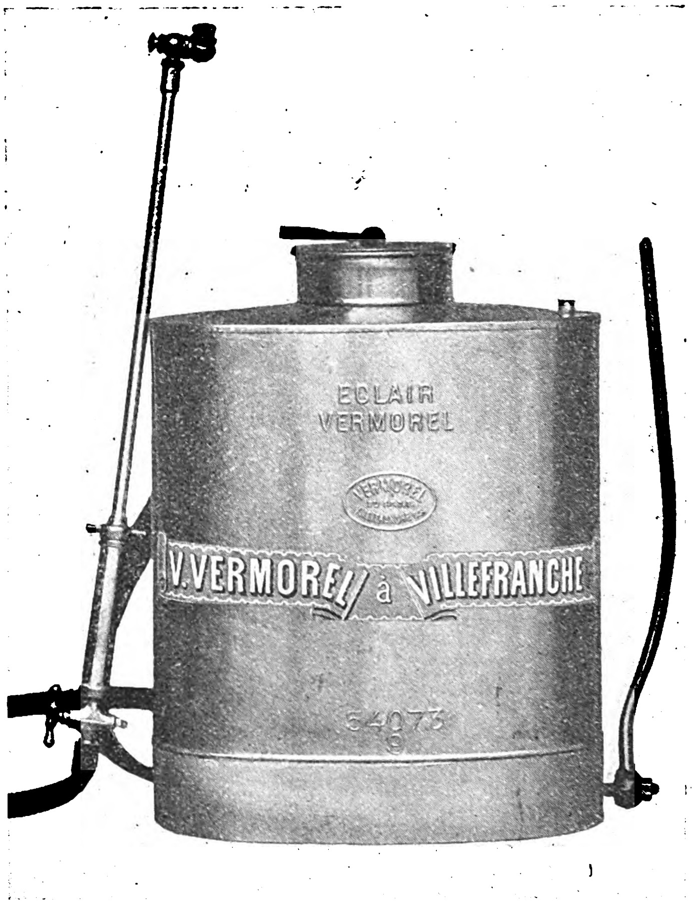


FIG. 12.—THE EARLIEST KNAPSACK SPRAYER.

NOTICES OF BOOKS.

Farrer's Last Journey*.

So much has been written by Reginald Farrer himself about his Asiatic adventures and so much by other hands that it needed some courage to prepare another book on the same subject, particularly as the ground has been already covered by Farrer's own letters to our columns. Those letters, indeed, provide the material without which this book could hardly have been written, though the author has been privileged to draw on other letters from Farrer to friends.

Had Farrer been spared he would certainly have written at length on his sojourn in the

---

* *The Gardeners' Chronicle*, March 7, 1891, p. 309.

* Imms, A. D., *Jour. Ministry of Agriculture*, Vol. XXXIII, No. 3, pp. 205-210.

† *Fruitgrower*, June 29, 1922, p. 113.

* *Farrer's Last Journey.* E. H. M. Cox, Dulau and Co., London. 18s. net.

Burmese Alps, but though the result would doubtless have been as entertaining to his admirers as *The Eaves of the World* and *The Rainbow Bridge*, gardeners and botanists would not expect to learn very much more of material importance than is to be found in Farrer's published letters.

Happily, however, the author has been able to do more than present his readers with extracts from Farrer's letters arranged in orderly sequence and with appropriate comments. As Farrer's companion during the first of the two seasons he spent in Upper Burma in 1919-1920, Mr. Cox is able to present the same picture seen by different eyes, and, though there are occasional echoes of the Farrerian style, he presents it without that spate of racy prattle, as Farrer himself calls it, which poured unchecked from his pen. In the result, the first part of the book is as interesting an account of a year's plant hunting in a comparatively limited area as anyone could wish to read. It has the inestimable advantage, too, of coming from the pen of a man who knows his plants at first hand, and has since kept many of them under observation. Though the story is all about plants, trees and shrubs, the country and the conditions in which they grow, it never degenerates into the arid catalogue of species and varieties with which before now some collectors have been content to cover page after page. On the other hand, though camp is continually pitched and repitched, it is never Xenophonic.

Here and there in these six chapters on the Hpimaw country, gardeners will find sage reflections and sage counsel on the vexed question of the management of Asiatic plants in this country. In regard to the Asiatic section of Primula, for instance, we read that: "In fact, whatever people may say to the contrary, many of the Asiatic Primulas are among the most difficult plants we possess; some of the Nivalis and Muscarioides, and all the Sonchifolia, Carolinella, Petiolaris, Soldanelloides, Bella and Dryadifolia sections are not among plants for ordinary gardens. Some day we may learn the trick of cultivating them. So far, the only road to even moderate success is to eschew pot culture. Every seed should be saved and most of them should be treated as annuals."

Again, on the subject of that much misunderstood word, *hardiness*, in relation to plants: "I cannot let this opportunity pass of again pointing out the fact that there is no rule of thumb by which we can gauge the hardiness of plants from this corner of Asia. I dare say that this Rhododendron,* if it is ever introduced, is not hardy, even in Cornwall, and yet up on the Chawchi its flowers were not only out, but over, within a hundred or two feet of what was the snowline at that time of year. If ever one could imagine that a plant was hardy, it would be in a case like this. Hardiness is not a question of the extremes that a plant can stand, but of the small fluctuations which it has to experience; that and two other factors that most gardeners are often inclined to overlook, the actinic value of the light and the humidity of the atmosphere."

Only those who have been through the mill themselves can have any conception of the plant collector's life, especially on the roof of the world. Apart from personal danger, happily non-existent in Burma, but very much the reverse in Tibet and Western China, a collector's life is a hard one. "There is no courier or hall porter at the Ritz to map out your day's sightseeing for you; you have to do all the staff work yourself. Routes and dates have to be planned weeks or months ahead. Specimens must be seen to, seeds cleaned, and the field notes written; and above all, you are in a constant tremble of fear in case you have missed anything important. A minor horror is the spectre in front of you that all the flowers that you have toiled up mountains to collect have already been introduced from elsewhere, and may be blooming in a Tooting garden. Of all the fears of the collector these are the most insidious. Once they appear like a speck on your mind they grow and grow until they entirely fill your horizon. It is often impossible to tell if a plant is new or not until your specimens have been critically examined in a herbarium at home. At the first thrill of discovery you are sure that your find is far more marvellous than anything ever seen before; then doubt slowly creeps in, and you will see either a real or an imaginary resemblance to something you have seen elsewhere, and this will remain as a fixture in your mind for months."

In Upper Burma Farrer was faced by a climate and a country as different from that of Kansu as chalk is from cheese. It is the difference between an old and highly civilised people and a backwater without tradition. In his own words: "There is no rainy season here, which means that it merely pours solidly for twenty-three hours out of every twenty-four, from June to November. The chief drawback of the country, apart from its preposterous climate and its utter lack of art, antiquity and architecture, is its almost universal vesture of forest and copse." From time to time his almost inexhaustible patience gave out, as in a letter to Sir Isaac Bayley Balfour. "Do you fully, I wonder, realise the limitations of travel here? In China and Tibet abundant 'roads' and inexhaustible supplies; here, in what is mysteriously called Upper Burma, a country with no supplies whatever, a country buried in jungle of an almost Malayan density." Again, "It is too absolutely lacking in human interest or emotional appeal of any sort. The colours, of course, are beyond words; but . . . . I could not make much even out of colours unless some interest were also aroused. China gave one odds and ends of buildings, temples and so on to stimulate and appeal . . . ." In this country we have lately had a taste of what seemed excessive rain, and know how disconcerting and depressing it can be to those who have to carry on their avocations whatever the weather. But in a country where the rain is measured by inches per day for months on end, it must be almost beyond human endurance. "I painted flowers," Farrer wrote, "and I wrote and all was very pleasant, though everything came to pieces in the wet, and blankets, chairs, clothes, were all continually in a reek, and one's breath steamed on the raw, corroding damp as if all one's high thoughts were indeed only hot air . . . ." Can we wonder that many of Farrer's specimens reached the Edinburgh Herbarium in a hopeless condition. Shortly before that he had written: "I am paying a long, heavy price, though, for the thrill of this year. Solitude far too long; up in a place too big for one's pettiness is bad; one has to expand or be squashed. I wonder if I shall emerge a saint or a philosopher—or a gibbering lunatic."

Had Farrer known beforehand just what was in front of him in Upper Burma, it is improbable that he would have made the journey, but his loyalty to his fellow adventurers at home was never in question, and having put his hand to it, his boundless enthusiasm and indomitable pluck were proof against conditions which would have broken the spirit of a man of lighter calibre, and eventually wore down his own physical resistance. His detachment and his wonderful capacity for living within himself and amusing himself must have stood him in good stead in the exceptionally rainy season of 1921, when, except for his native servants, alone in his leaky shack at Nyitadi—"nothing but vacillating screens of bamboo"—he was never dry and seldom saw the sun. The strain would have sapped a vitality stronger than Farrer's, and probably made the final collapse more or less inevitable.

Of the actual end, all is conjecture, except that it was mercifully only a matter of days; but Mr. Cox makes it clear that Farrer's trustworthy native servants did all they could for him. Beyond that they gave him decent burial, in a clearing above the fort at the military post of Kong-lo-bum. Himself a child of the Pennines, the hills always had an inexhaustible attraction for Farrer, and, glad as his many friends would have been to have had it otherwise, it is not unfitting that he should rest within sight of the eaves of the world.

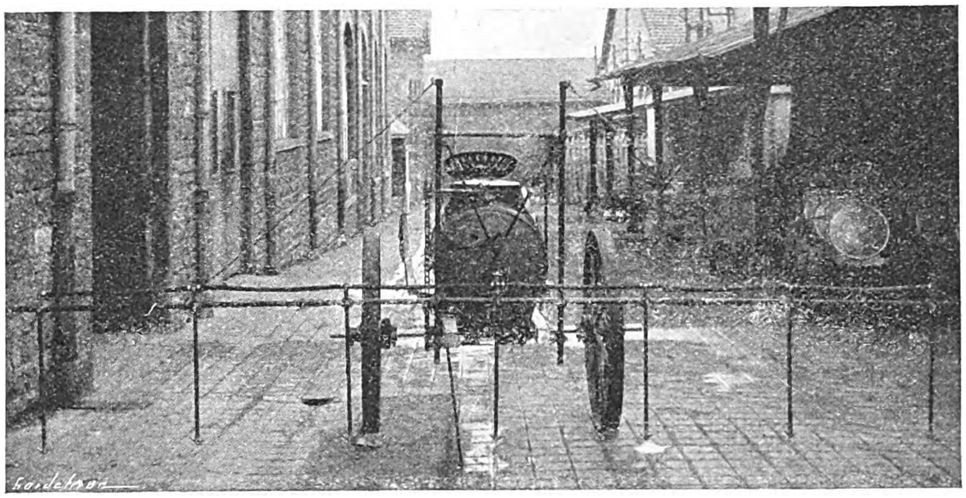


FIG. 13.—HORSE-DRAWN SPRAYING MACHINE FITTED WITH SPRAY BOOMS.

(see p. 14).

Keen cultivators of plants will derive much interest from the author's chapter (Appendix A) on the hardiness of plants from Upper Burma, and will be largely in agreement with him that the majority of Upper Burmese plants are beyond the powers of the cleverest outdoor gardeners in Britain.

In Appendix B, too, amateurs of Rhododendron will find Miss Helen Maxwell's notes on the species found or introduced by Farrer invaluable. Primroses were always nearest Farrer's heart, and until he went to Upper Burma his interest in the Rhododendron genus was barely lukewarm; indeed, as his readers know, he had expressed himself of old in characteristic fashion about the genus. But Hpimaw opened his eyes to the incomparable beauty of Rhododendron, and incidentally opened the flood gates of his descriptive powers, as in his account of R. asperantum (p. 191). Had he lived, Rhododendron species must have run Primroses close in his affections.

Of the forty-five Rhododendrons found by Farrer and himself, Mr. Cox rates fifteen—a fair proportion—as of quality, and of those found and introduced by Farrer, R. aiolosalpinx is possible the pick. Farrer found it on the Chimili pass at eleven to twelve thousand feet, in 1919 (No. 926).

The many fine photographs of the country will help stay-at-home readers to a realisation of its almost illimitable vastness, and something of the difficulties the explorers had to contend with. They are worthy of more careful attachment to the pages then the publishers have seen fit to give them. There is but an occasional misprint, and the index is scrappy.

---

*R. hylaeum.

Farrer's place in botany and horticulture is not easy to define. His reputation as a collector of Asiatic plants rests on the results of his exploration of Southern Kansu in 1914-1915, and the journey which is the subject of this book. Had he lived to continue his work he would doubtless have gone down to posterity as a great collector; and as it is, notwithstanding the ill-luck which dogged him, his three years of adventure have enriched gardens with several fine things. Their number would have increased had his Kansu journey not coincided with the opening years of the war, when but little attention could be given to the voluminous material he sent home. Comparison between Farrer and other collectors is valueless, for he had only been in Asia three years when he died, and he was unlike anyone. His unbounded enthusiasm often led him astray in his judgments of plants from the gardener's point of view, and those judgments were often revised: but his swans were seldom geese; and though, in a sense, he never grew up, he brought all the resources of a whimsical personality, a cultivated and alert mind, and a memory keen beyond the ordinary to bear on the ruling passion of his life. Gardeners throughout the world are in his debt.

FRUIT GARDEN.

PRUNING HARDY FRUITS.

For many years it has been the practice of most gardeners to carry out the main operations of pruning hardy fruits at any convenient time through the winter. It is true, of course, that some pruning has been done at other periods, *e.g.*, most advocates of the super-pruning system carry out what is called summer-pruning, but even they prune in winter by again shortening the growths during the dormant season.

As to the respective merits of the various methods of pruning—hard pruning, light pruning, spur pruning and extension pruning—I do not propose to discuss, but I would like to consider the question: When is the right time to cut a tree? I know that the answer from some growers will be: never. If, however, the question is considered, even the most extreme advocate of the natural methods of growing trees must admit that some pruning is necessary. From the bud or graft stage, the tree has to be shaped, and after the main outline of the tree has been laid down, the head has to be kept reasonably thin. The question then, is just as important to those who prune lightly as to those who closely spur-prune.

The plan of winter pruning has been followed in the past for at least three reasons: 1, The main work of pruning can be done more conveniently during the comparatively slack winter period than at any other time; 2, In the past growers have paid a great deal of attention to the bleeding of cut plant tissue, and have been inclined to think that the safest time to cut plant tissue was during the dormant season; 3, Many have been in the habit of somewhat confusing the drying of cut plant tissue with the healing of the same. It would, perhaps, not be out of place here to examine these three reasons in a little more detail.

1. Undoubtedly it is a great help to most growers to get the main work of pruning done at a slack period. It would appear, too, that the work can be done fairly effectively during the winter, but I often wonder if growers do not deceive themselves over this. Quite apart from the fact that woody stems may, or may not, heal during the winter, is the fact that some of the pruning generally done in winter could be done better during the growing season. To make the point clearer, let me take the case of an established tree—of Apple, Pear or Plum. No matter to which school (hard pruners or light pruners) we belong, I think that all are agreed that the first essential is the removal of diseased wood. Most of the dead wood in fruit trees is due to fungous attack, and many fungi do not produce spores until the tissue in which they are living has been killed. To remove the diseased parts so soon as possible is the best method of control we have for certain troublesome diseases, and yet this work is often badly done. The diseased and dead wood could at least be better seen during the growing season than during the dormant season, *e.g.*, apart from silver-leaf, the most common disease among Plums is possibly wither-tip, Sclerotinia cinerea, formerly called Monilia cinerea.

The most effective control for this disease is the removal of diseased portions, which is perfectly easy to do during summer, and exceedingly difficult to do in winter, except on very small trees. To cut out some of the diseased shoots and leave in some is not the best of practice. It may be due to the season, but the fact remains that some Plum growers whose trees missed a crop last season, took advantage of not having a crop to harvest, to cut the wither-tip out. This season they have had a good crop of Plums and the wither-tip appears to be much reduced. I feel certain that although it is very convenient to get most of the pruning done in winter, the practice is responsible for much diseased wood being left in. This is unfortunate, because the removal of diseased wood is perhaps the only detail of the practice of pruning on which all are agreed.

2. Many gardeners have come to the conclusion that it is dangerous to cut trees except in the dormant season. This idea is probably based on the fact that damage and sometimes death results when certain plants are pruned in the spring. Because vines and certain Conifers bleed very badly when cut in spring, most gardeners think that spring pruning is wrong, and that the only safe time to cut woody tissue is at the time when the cuts do not show any sign of moisture at the surface, namely, winter. Some gardeners have noticed that if woody tissue is cut when it is in full leaf bleeding does not take place to any extent and that a callus forms very quickly. However, many still cling to the ruling that winter is the only time to cut woody tissues.

3. Very closely linked up with the above question of bleeding is the confusion that has, and in the majority of minds still exists, between the drying of cut plant tissue and the healing of the same. Priestley and Woffenden* have shown that when Potato tubers are cut into two sets and the cut surfaces exposed to air and sunlight, the cut surface does not form a continuous sheet of suberin. If, on the contrary, the cut tubers are kept under conditions where the newly exposed surfaces do not dry quickly, a continuous layer of suberin is formed in a short period.

This is rather in conflict with what many have thought, who have inclined to the view that if cut tubers could be prevented from bleeding, or rather, if the cut surface dried quickly, cut sets healed up and the resulting plants did better when planted, hence the practice of dipping cut Potato sets in lime, soot, dry soil, etc. If the cut surface remained dry, growers have been satisfied that everything was in order; on the other hand, if the cut surface bled a little, they have been afraid that all was not well.

Recent research has shown that these conclusions have no reliable basis. Swarbrick† has shown that certain twigs cut in winter remain open wounds until the following late spring; whereas in twigs cut during late spring and summer the wound healed very quickly and within a very short period became closed, inasmuch that disease organisms failed to enter.

The above three paragraphs may be an attempt to defend the practice of winter pruning; the defence advanced is probably not complete, and many other reasons could no doubt be found as to why most pruning is done in winter. Yet if recent research work be correct, it seems to show that growers have been wrong. To prune fruit trees during winter is to cause as many open wounds as there are cuts made; disease organisms can enter readily through these wounds and new seats of disease are set up. I am aware that growers have painted large wounds with tar to keep out disease organisms, but Brooks and Moore* inform us that tar is unsatisfactory, and that something else is better. Brooks and Moore when writing of Stereum purpureum state; "At most times of the year infection took place as readily through the gas tar as through unprotected wounds." Even if painting cut surfaces with tar or any other substance did keep out disease, it is only practical to treat the large cuts; all the small wounds must remain untreated. Brooks and Moore show that certain substances do help to keep out the organisms of Stereum purpureum, but Swarbrick's work goes to show that the best protection of all is when wounds are made during May, June, July and August, because wounds made during these months plug up very rapidly. This work of Swarbrick seems to explain the statement of Brooks and Moore in the above paper. "It has been found that the fungus can generally infect fresh wounds readily throughout the year, except during June, July and August."

How can growers make the best use of this research work? It appears certain that from the standpoint of plant disease, winter pruning is wrong. If growers can manage to put these new facts into practice they should do something towards making their fruit trees more healthy. There are, of course, practical difficulties to be overcome, *e.g.*, it would be impossible to spur-prune in June and July. It would seem that of the two schools of pruners those who only thin their trees would be best able to make use of this research work. All thinning, apart from the question of labour, could be done just as well during June and July as at any other time. Those who spur-prune are not placed in quite such an easy position; they could carry out their programme of summer pruning as hitherto, but it would seem that the final spurring would be best left until so late as is practical in the following spring. *Somerset.*

WALL FRUIT TREES.

The pruning and fastening of fruit trees on walls should now receive attention. Where summer pruning was resorted to earlier in the season, all that remains to be done now is to shorten the growths already cut back to four or five buds, otherwise the spurs they are forming will soon grow long and unsightly; and to reduce the leading shoots to the desired length. This applies to Pear and Apple trees growing against walls, whether they are trained as single cordons or as horizontal or fan-trained specimens, but in the case of Plums a more rational form of pruning is desirable, and this is best performed by removing old, worn-out branches and training in young shoots in their places.

These young shoots may be shortened to about two-thirds of their length if the tips are not properly ripened, and the short side spurs formed on them will, in course of time, produce quantities of flower-buds.

Young trees which have a tendency to grow rapidly should be examined carefully and all ties which are liable to compress the bark removed. The modern methods of wiring garden walls is a great advantage and permits of fastening the shoots speedily and securely. Morello Cherries, which require a great amount of tying each season, may be fastened to lengths of sheep-netting secured to the walls. As the wires cross every four or five inches the shoots may be made secure easily, no matter in which direction they are trained. *H.*

WINTER SPRAYING.

A quiet day should be chosen to spray fruit trees with one or other of the winter washes now so highly recommended, taking care to observe the instructions given with the various preparations.

The older methods of spraying with caustic soda washes is now being superseded by the newer carbolic specifics, which are said to be very effective in destroying the eggs of aphis.

---

* Priestley, J. H. and Woffenden, L. M. The Healing of Wounds in Potato-Tubers and their Propagation by Cut Sets. *Ann. Appl. Biol.*, Vol. X, p. 96–115.

† Swarbrick, T. The Healing of Wounds in Woody Stems. *Jour. of Pomology.* Vol. V, p. 98–114.

* Brooks, F. T., and Moore, W. C. Silver Leaf Disease *Jour. of Pomology*, Vol. V p. 61–97

etc., without burning of the bark of the trees, which sometimes accompanied the caustic soda treatment. Where fungous diseases are prevalent, such as canker and scab, a thorough spraying with a lime-sulphur wash, just before the buds begin to develop, is one of the best remedies. The spraying may be repeated in a diluted form after the trees are past the flowering stage, with excellent results. Too much emphasis, however, cannot be laid on the fact that very old Lichen-covered and canker-infested fruit trees are better removed and burned, as they form a centre of infection for young, healthy trees which are planted in their vicinity, and it is generally a waste of time and energy to try to cleanse them. *A. T. Harrison.*

CULTURAL MEMORANDA.

PRUNING HARDY SHRUBS.

The winter pruning of hardy shrubs calls for attention, and with a few exceptions, this should take the form of careful thinning rather than hard pruning.

The various species of Prunus, Pyrus and, in fact, any deciduous shrubs, the branches of which have become unduly crowded, should be thinned judiciously. Others which are exceeding their allotted space and overcrowding their neighbours, may be shortened back, but in all cases the branches should either be removed entirely or pruned back to a junction or fork; unsightly stumps should on no account be left, for the whole art of this system of pruning is to make it as inconspicuous as possible.

After the pruning is completed all the cut surfaces should be painted with gas tar; this will make the exposed wood waterproof and prevent the entry of fungous spores.

Syringas, Deutzias, Philadelphus, Diervillas, etc., are better pruned immediately after flowering, but if this has been neglected, and the bushes have become dense, a light thinning of the older wood will benefit the plants, even if it means the loss of a few flowers.

The pruning of such autumn-flowering shrubs as Buddleia variabilis, Caryopteris Mastacanthus, the hybrid Ceanothuses, and the shrubby Spiraea japonica, which are usually pruned fairly hard, should be deferred for a few weeks or they may be induced to commence growth too early and be injured by spring frosts.

Hydrangea paniculata is often pruned too drastically, for although larger panicles of flowers may be secured for a time by hard pruning, this eventually leads to the weakening and probable death of the plant. H. paniculata is a comparatively long-lived and first-class hardy shrub if it is given rational treatment. The only pruning necessary is a slight shortening of the old flowering growths to retain a shapely specimen, and a light thinning of the growths if they become too dense. *F. C. P.*

VEGETABLE GARDEN.

SORREL.

Sorrel does not seem to be grown to any great extent, although it has been known to horticulturists for many years.

McIntosh, in his *Practical Gardener*, states: "There are several species cultivated, and of them some slight varieties differing in the succulency of their leaves, which is their principal merit. Sorrel is used in soups, salads and sauces, and very generally on the continent as a Spinach."

No one need hesitate to cultivate Sorrel, as the plants may either be purchased or raised from seeds.

Sorrel plants are not fastidious as to soil or situation; they grow splendidly when in well-cultivated and somewhat heavy land, the large- and small-leaved forms doing equally well when grown on the same border.

The seeds should be sown in the spring or any time throughout the summer, in shallow drills made twelve inches to fifteen inches apart. If the seeds are sown thinly, the seedlings may be allowed to grow without thinning. By this method good plants will be obtained in a few months.

The small-leaved variety is compact in appearance and produces medium-sized leaves in quantity. Some plants of the large-leaved kind exhibit reddish-coloured flower stems, while other plants have green flower stems. Both types of the large kind are much coarser-looking than the small-leaved variety.

To increase the stock vegetatively, large plants should be taken up in the early part of the year and the crowns divided, or cut in such a way that each portion will have roots attached. The divided portions should be set out singly in rows. *D. A., Midlothian.*

JERUSALEM ARTICHOKE

If not already harvested, this crop should now be lifted and stored, selecting suitable-sized and shapely tubers for planting so soon as possible. If this crop is not in great demand and the ground it is occupying can be spared, there is an advantage in allowing the roots to remain in the soil for a second season, the resultant crop being, naturally, very much heavier.

If this plan is followed, however, some protective measures should be employed where pheasants are numerous, as these birds have a pronounced liking for Artichokes, and dig or scratch their way down to the tubers with an almost uncanny instinct. *A. T. H.*

HOME CORRESPONDENCE.

Failure with Celery.—With reference to the letter by "*F.K.*" (p. 477, vol. LXXX) on the failure of his Celery, I have also a complete failure identical with his, except that I have had an attack of Celery disease causing the foliage to appear as though scorched. I planted 1,000 plants in three batches; Sutton's Dwarf, Sutton's White and Grove Red; they were planted in properly prepared trenches as is usual to produce good heads. Grove Red, planted in July, has made practically no growth, the others hardly any more, yet root action has been plentiful and clean, but top growth has been practically nil. I am pulling up the whole lot and preparing for Peas. I saw another similar case a few weeks ago near here. Our soil is fairly heavy, resting on chalk, by the river Test near Andover. *E. O., Stockbridge.*

Biennial Cropping of Apples.—The tendency to biennial cropping in Apples, which Grigor Roy denies (p. 496), is recognised by many research workers in this country and in America. Some varieties, of course, possess the habit in much more pronounced degree than others. I find that, whilst most varieties tend to become biennial croppers as the trees age, some exhibit the habit from the beginning of their bearing life, long before they have ceased to make vigorous growth or begun to carry crops heavy enough to need thinning. I do not say that such trees are always absolutely barren in their "off" year; but they have a tendency to bear alternately good and very light crops. I find this notably with Bramley's Seedling. It has long been my belief that the biennial bearing habit is responsible for many of the crop failures that are attributed to frost and other unfavourable weather at blooming time, at any rate, in the south of England. Take the past season, for instance. The weather at blooming time was bad, I admit. In spite of this, some trees managed to set a full crop; and they were those trees which did not bear in the previous year. On my own place, for instance, blocks of Bramley's Seedling which did not bear in 1925 cropped abundantly in 1926, and *vice versa*. Yet blossoming conditions were the same for all. Also a neighbour, for whom 1926 happened to be the "on" year, secured quite a good crop of most of the varieties in a plantation separated from mine only by a hedge. Thinning the fruit is routine practice with me for all crops that require it; but I have not found it to be a remedy for biennial bearing. It has failed also in such experiments of which I have seen reports. Apparently, the relief to the tree comes too late. Thinning the bloom is said to have been more successful. Cropping depends on nutritive conditions within the tree; and these are influenced mainly by the amount of crop in the previous season and the weather of that season. Mr. A. H. Lees, of the Long Ashton Research Station, after an examination of cropping and weather records for many years back, comes to this conclusion (*Journal of Pomology*, vol. V, No. 3). He advances very reasonable explanations for the exceptions to biennial bearing, which occur from time to time. With regard to the attempts which have been made to overcome biennial bearing, the most hopeful results have followed special methods of manuring; but nothing very definite has been achieved over any long period, so far as I have seen. It seems possible that the remedy, if there is one, may be found in some combination of pruning and manuring. Obviously the problem is of immense importance to market growers; and any one who solves it will do a great service to horticulture. *Market Grower.*

Rabbits and Mice Damaging Fruit Trees.—Where rabbits are plentiful it may be necessary to protect the stems of young trees with wire-netting to a height of four feet, or the stems may be painted with some distasteful material. A suitable mixture may be prepared by reducing fresh cow manure to a consistency of paste and adding sufficient tar to make it adhesive. Field voles are also very destructive in some districts and do much harm to fruit trees. They frequently gnaw the bark just below the soil level, and their depredations may easily go on unobserved until much damage is done. They sometimes climb into the trees also and gnaw around the spurs. This evil is very difficult to combat, as extermination by trapping is scarcely possible and painting the bark with a distasteful preparation seems to be the only remedy. *A.*

Salvia Pittieri.—I have been much interested in the reference to Salvia Pittieri in recent numbers of *The Gardeners' Chronicle*. Your correspondent, Mr. Bolas, most kindly sent me young plants of his S. Pittieri in bloom, and they prove to be the same as the plant I grow as S. fulgens. My plant was determined for me by the authorities at Kew several years ago, when they asked me for cuttings, as at that time it was not being grown there. Are S. Pittieri and S. fulgens one and the same species? Or, if distinct, is the former now in cultivation? I believe it was first listed by Messrs. Gauntlett about 1914, and the description in their catalogue agrees well with S. fulgens. In mild districts S. fulgens is a magnificent plant where it is quite hardy and quickly forms a bush eight feet high in a sheltered border. The large, bright scarlet flowers are borne in profusion from mid-summer till hard frost puts an end to them. I have often had the plant in flower at Christmas. *N. G. Hadden, West Porlock, Somerset.*

Value of Deep Trenching.—Referring to the value of deep trenching, as demonstrated in your issue of December 18, the very marked difference in the Broccoli on the trenched and on the dug land at Aldenham shows very conclusively the value of the former, although many will ask, Where is the money to come from to pay the worker? That it pays no one can deny, but the trouble is often to get owners to realise that it does pay, consequently the greater the publicity Mr. Beckett's pictures receive, the greater should be the productiveness of the land. In these days of vast unemployment, this appears to me an opportunity which should not be lost. Let "the pictures tell the story." My knowledge of the actual value of deep trenching is limited to providing a good root-run by the opening up and pulverising of the soil. thereby providing better drainage and paradoxically increasing the available water content of the soil for the use of the plants. Doubtless, Mr. Beckett could give more and better reasons. I have been informed that deep trenching is a good practice to combat the trouble among Strawberries, and I shall be pleased to know if readers have found it prevent, or cure, the very marked weakness which has been prevalent among Strawberries for the past four or five years. *J. E.*

Salvia carduacea.—I recently had the Thistle-leaved Sage through my hands, and it may be considered as curious as it is rare. At first sight I took it to be Morina longifolia, but the dissection of the flowers soon dispelled that view. It is figured in the *Botanical Magazine*, t. 4874, and there the floral leaves are compared to those of Morina persica. Bentham in giving the specific name, has compared it to a Thistle (Carduus), and this is not inapt, considering the spiny character of the foliage and bracts. There is only one species of Salvia with spiny foliage and it comes from California, where the dry climate would seem to have developed this peculiar habit. The flowers are pale purple, with deep orange-coloured anthers, and though the plant cannot be described as showy, it is certainly conspicuous. S. carduacea was first introduced by Messrs. Veitch, of the Exeter and Chelsea nurseries, and was figured in the *Bot., Mag.* from specimens obtained from that firm. It was discovered by Mr. Lobb, their collector, in 1854, and appeared as an introduced plant in the following year. The traveller Douglas and Dr. Coulter collected the species in 1833 in several parts of California, including the Sacramento Valley, Los Angeles and San Bernardino. *J. F.*

Saxifraga Cotyledon icelandica.—In his notes, on p. 471, vol. LXXX, Sir Herbert Maxwell pointed out that Saxifraga Cotyledon icelandica has no connection with Iceland. As a matter of fact, is "icelandica" the correct name? In the chapter on Saxifraga in *The English Rock Garden*, the late Mr. Farrer remarks:—"the finest (variety of S. cotyledon) is the superb S. c. *islandica*, from the far north, with enormous rosettes, often more than a foot across . . in tones of iron and bronze, with the most amazing spike to match of four or five feet . . . on the oolitic limestone of the garden at St. Johns, at Oxford, whence it first broke forth upon a dazzled world, it thrives, or throve with all its might." I was interested in Mr. Elliott's note on Saxifraga Cotyledon (vol. LXXX, p. 427), having grown S. C. pyramidalis for over twenty years in pots, as a decorative subject for the cool greenhouse. There is one detail in his method of culture we do not practice, that is the removal of the side growths or off-sets from the growing plant after it is first potted until it reaches the flowering stage. After flowering the rosette is useless, so that if the offsets removed are not preserved, the grower would be without a stock for another year. We remove the offsets after flowering, and dibble them into boxes, grading and placing them in small pots when they are established. *F.*

Vita Glass for Orchid Seedlings.—Has any reader of *The Gardeners' Chronicle* tried Vita glass—that allows the ultra-violet rays to pass through and has proved such a boon to crippled children and others—for seedling Orchids? I find our seedlings of Odontoglossum practically stand still during the four dark winter months, and some damp off during very humid periods. Our climate, here, has usually 90% of humidity, and, naturally, during the coal strike, when for some time our houses were down to 43°, we lost more than our usual percentage. I have three houses, about forty feet by twelve feet; the first two communicate under the staging, and Odontoglossum crispum germinates very freely in the first house, but hardly at all in the second, although the temperature must be the same in each as there is communication near the pipes, but not at all in the third house, although the conditions appear the same in all three. I cannot help thinking that this new glass is going to prove a great boon to horticulture generally, and for seedling Orchids in particular, especially during winter, therefore I would very much value the opinion of others regarding its use. *R. Brooman White, Ard- darroch, Garelochhead, Dumbartonshire.*

Thrips on Orchid Seedlings.—No doubt some of your numerous readers can help me in my difficulty. We are very much bothered with thrips, notwithstanding all our efforts to combat the pest. Our houses are surrounded by trees, and I fancy fresh batches of thrips come in from these. What we require is some sort of deterrent such as Tobacco leaves placed on the hot-water pipes, but price precludes their use in this country, although the Belgian growers use them on all occasions, and thrips are an unknown quantity—to them. I am wondering whether camphor would be of any use; as camphor is derived from a tree, would the emanations be injurious, say, to seedlings of Odontoglossums? *R. Brooman White, Arddarroch, Garelochhead, Dumbartonshire.*

THE MANAGEMENT OF BOWLING GREENS.

The bowling season of 1926 ended in a week of glorious weather, and when the end of September arrived the conditions for bowling were so favourable that many clubs extended their season of play for a week. This, however, was not possible on most municipal greens where work had been arranged to be commenced so soon as play was over. In view of the fine summer the turf in most cases showed signs of wear, and rest from play came none too soon for the good of the greens.

Bowling greens require very careful attention during the autumn and spring owing to the nature of their construction, and one of the most essential details is keeping the surface dead true.

At the close of a long season's play the turf is sure to become worn badly in places, and some parts of the green may need relaying. The green-keeper should determine early the amount of turf required for replacement, so that it is at hand before severe weather sets in. Make the area to be relaid square at the edges, place the new turves with the apex pointing to one corner of the green so that they are laid diagonally, and take care that each turf is dead level with the existing surface. After worn places have received attention, the next point to consider is the question of weeds, which must be removed entirely and in such a manner that the least possible disturbance of the surface is occasioned. Holes or depressions made in removing weeds should be made good with sea sand; it may be necessary to plug big holes made in removing large weeds with small pieces of turf pushed in with the fingers. The chief weed of Cumberland turf is the Sea-pink, which must be eradicated, stolons and all, and in new greens may not wholly disappear under two or three seasons. Take care to keep paths and turf in the vicinity of the green free from weeds, and never allow grass to seed near bowling greens. Clover should never be permitted but removed directly a plant of it is detected.

When returfing and weeding are completed, next ascertain whether the surface is perfectly level. Newly-laid greens are sure to have sunk in some places and these parts must be made true. This is best done by removing the turf and placing sufficient sea sand under to ensure a perfectly level surface.

In some greens, especially those constructed on a soil base, worms are troublesome and should be exterminated either in early autumn or spring. Worm casts make accurate play impossible, and the continual brushing of the casts injures the surface and exposes the roots of the grasses. The treatment is as follows: leave the ground unrolled for some days in order that the worms may open up their runs, then, on a warm, moist day, distribute a reliable worm-killer at the rate of half-a-pound per square yard of surface; a full-sized green (forty-two yards by forty-two yards) will require six to seven hundredweights of the worm-killer. Water the turf by means of a hose, using sufficient to make the worm-destroyer into a lather on the surface. The worms, when they reach the open, are not always killed and should be swept up and carted away at once.

The next important detail is the application of sand and manure as a top-dressing. Mix six cubic yards of finely-sifted sea-sand with two hundredweights of grass fertiliser. Distribute the mixture over the green and work it into the turf by the back of a wooden rake or the special implement made for the purpose. The small depressions and hollows will become filled with the sand and the surface made true. With these operations completed no further attention is needed until early spring, when it becomes necessary to prepare for the coming season's play. *Arthur Keeling, Park Superintendent, Southend.*

GLASGOW BOTANIC GARDENS.

The Botanic Gardens in the Great Western Road, Glasgow, are really the third institution of the kind founded in the city. The first botanic garden, called "the Physic Garden," consisted of a portion of College Green, High Street, which was set apart about 1790 by the University authorities for the cultivation of medicinal plants, and it was reserved for students.

In 1815, Mr. James Hopkirk of Dalbeth, who was an enthusiastic botanist, formed a society for the purpose of establishing a botanic garden that would be available for the citizens. As he had great influence among the Glasgow merchants, Mr. Hopkirk's scheme was speedily successful, and in 1816, Dr. Cleland, the City Chamberlain, wrote thus: "The subscribers to the Royal Botanic Garden were erected into a Corporation by the Prince Regent and Council; Dr. William Jackson Hooker so justly distinguished for scientific acquirements, is the first Professor." Sir William Jackson Hooker was Regius Professor of Botany at Glasgow University, and afterwards the famous Director of Kew Gardens. It was he who persuaded the college authorities to contribute a large sum towards the Botanic Garden project on the condition that the place might be used for teaching botany to the students.

In 1816, a plot of ground, eight acres in extent, was purchased at the west end of Sauchiehall Road, stretching from the present Royal Crescent southwards to Dumbarton Road, and bounded on the east by what is now Claremont Street. The ground was laid out in the following year, and Mr. Hopkirk presented many specimens from his own garden at Dalbeth. Though now covered with streets and tenements the spot was quite rural at that time, the only houses near being the villages of Anderston and Finnieston on one side and Partick on the other. Before twenty years had elapsed the buildings were encroaching upon the neighbourhood in all directions; and in 1838 it was found expedient to sell the ground of the old botanic garden to the builders who had projected streets to occupy its site. The whole of the space is now occupied by streets and modern terraces; and Finnieston Station is directly opposite where the gate of the garden stood, in Dumbarton Road. Thus the second Botanic Garden came to an end, after having had but a comparatively short existence.

The Royal Botanic Garden Company was not wound up at this period, but was continued for the purpose of establishing a similar institution elsewhere. In 1839, ground was acquired in the Great Western Road, where it is still in existence. This road had been formed and several streets had been laid out in Hillhead; but there were no houses nearer to the gardens than a few terraces in the neighbourhood of what is now St. George's Cross, and the site was surrounded by green fields. The bridge over the Kelvin, on the line of the Great Western Road, was built in 1838-40, enlarged in 1859, and reconstructed in 1891; but it was chiefly used as an access to Hillhead, until the Woodlands Road Bridge was built over the Kelvin in 1853. When the Botanic Gardens ground was purchased in 1839 the whole district was rural, the only houses being a few small cottages with thatched roofs scattered about the site, the last of which remained in existence till 1880. The nearest mansions were North Woodside House, Kelvinside, Gairbraid and Byres of Partick.

The ground for the new Botanic Gardens extended to twenty-two acres, and the place was ready for occupation in 1842, though many additional glasshouses were erected afterwards. The scheme was carried out on a much larger scale than was ever contemplated by the projectors. The expense of conducting such an undertaking was too much for the private subscribers; in 1863 an effort was made to inrcease the revenue, and several magnificent gifts of money were made by private citizens. This did not serve to make the concern prosperous, however. The Corporation of Glasgow was appealed to, and money was advanced on bonds upon the property.

Another difficulty arose through the acquisition of what seemed at first a splendid addition to the Botanic Gardens. In 1871, Mr. John Kibble agreed to remove his magnificent conservatory from Coulport, and to re-erect it in the gardens under the name of the Kibble Palace. He stipulated that he should have a free lease of the place for twenty-one years for concerts and other similar purposes; but this arrangement had ultimately a deleterious effect upon the Gardens. The Directors found it necessary to buy out this right and to reconstruct the Kibble Palace as a winter garden.

These expenses plunged the affair into a hopeless state of debt, and in 1887 the Corporation, as principal bond-holder, was invited to take possession of the Gardens. By the Act of 1891, whereby Hillhead and Kelvinside were annexed to Glasgow, it was provided that the Botanic Gardens should be ranked as one of the public parks. The debt due to the Town Council at this time was about £60,000; a part of the ground called Montgomery Wood, extending to eight-and-a-half acres, was purchased for £3,800 and added to the Gardens, and thus the whole cost to the city has amounted to about £64,000, which includes all the conservatories and rare plants. The Kibble Palace is acknowledged to be one of the finest structures of its kind in Europe. *A. H. Millar.*

PUBLIC PARKS AND GARDENS.

Brighton Corporation has under consideration a scheme, drawn up by the Superintendent of the public parks and gardens, for the transformation of Preston Park into a Continental Park of terrace and alpine gardens, boulevards, and a lake six acres in acrea. The estimated cost is £50,000.

Teignmouth Urban District Council has under consideration the question of the purchase of the Clifden Estate, with the residence, for the provision of a public park and pleasure ground.

Alsager Urban District Council has given instructions to the surveyor to draft a scheme for the provision of a recreation ground.

The Parks Committee of Edinburgh recommends the laying out of ground at Chessel's Court as a recreation ground, at a cost of £200.

Grangemouth Parish Council has approved a scheme submitted by the Landward Committee for the reclamation of the Redding Loch, Redding Village, and its conversion into a recreation ground.

SOCIETIES.

ROYAL CALEDONIAN HORTICULTURAL.

The December monthly meeting of this Society was held at 5, St. Andrew's Square, Edinburgh, when Mr. W. J. Thomson, President, occupied the chair. A paper was read by Mr. Adam Knight, Brayton, Carlisle, on "The Educational Value of Horticultural Exhibitions."

The exhibits were: Sweet Peas, by Mr. D. Armstrong, The Drum, Edinburgh; Chrysanthemum Yellow Favourite, by Messrs. Wm. Marshall and Co., Belleisle Gardens, Ayr.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Friday, December 17, 1926.—*Committee present:* J. B. Adamson, Esq. (in the chair), Messrs. H. Astley-Bell, C. Branch, A. Burns, A. Coningsby, J. Cypher, J. Evans, A. Keeling, D. McLeod, E. W. Thompson and H. Arthur (Secretary).

First Class Certificates.

Cypripedium Crusader (*Lucifer × Julian*).—A fine flower; the dorsal sepal measures nearly three-and-a-half inches across and has a crimson ground and white margin; the lip is mahogany colour, the petals being a lighter shade,

Cypripedium Christo-Moorei (*nito Hallii × Lady Dillon × Christopher Grand Duke Nicholas*).—The large, dorsal sepal has a white-green base and purple spots with purple lines up the centre; the petals are green with bronze lines,

Cypripedium Chrispostum var. Amy Moore.—The dorsal sepal which measures four inches across, has a spotted base and a deep white margin.

Cypripedium Baldur, Westonbirt variety (*G. F. Moore × Niobe*).—A flower of good shape; the dorsal sepal has crimson markings and a green base; the petals and lip are coloured dark brown. The above four were from S. Gratrix, Esq.

Cypripedium Lucifer, Holford's variety.—A well-shaped flower; the dorsal sepal has crimson lines with a green base; the lip and petals resemble those of C. Niobe. From Mrs. Gratrix.

Brasso-Cattleya British Queen var. Thunderer.—A large, well-shaped flower with a broad, spreading lip that is well frilled. From J. B. Adamson, Esq.

Cypripedium Ranleigh (*Bianca × Christopher*).—This flower has a yellow dorsal sepal with a broad, white margin. From H. J. Bromilow, Esq.

Awards of Merit.

Odontioda Leeana var. Illustre; O. Marjorie var. Armeniaca; Cypripedium Royalist (*Germain Opoix × gigas*)*; Laelio-Cattleya Schröderae, var. Princeps; L.-C. Schröderae var. Luna; Cattleya Maggie Raphael alba var. Exquisita; Cypripedium Anita* (*Bianca × Sanacderae*). From J. B. Adamson, Esq.

Cypripedium Clara Gibbons (*Troilus Cravenianum × Harefield Hall*)*; C. Cathic Redmayne* (*Troilus × Beryl*)*; C. Chrispostum The Prince.* From D. Losh Smith, Esq.

Cypripedium Bendigo (*Niobe × Bronzino*)*; C. Imperator* (*Alcibiades × Pyramus*). From Messrs. H. G. Alexander, Ltd.

Cypripedium Shamus var. Shaun. From Mrs. Bruce and Miss Wrigley.

Odontioda Cardinale var. Dora (*Schröderae × eximium Shackletonii.* From Mrs. P. Smith.

Cypripedium Nesta, Westonbirt variety. From S. Gratrix, Esq.

Cypripedium Mrs. Eley (*Christopher × Warrior*).—From Messrs. A. J. Keeling and Sons.

Groups.

J. B. Adamson, Esq., Blackpool (gr. Mr. J. Howes), staged a group to which a Gold Medal was awarded.

A Gold Medal was also awarded to a group staged by S. Gratrix, Esq., West Point (gr. Mr. C. Branch).

Messrs. J. Cypher and Sons, Cheltenham, were awarded a Silver-gilt Medal for a miscellaneous group of Orchids.

A Large Silver Medal was awarded to Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), for an exhibit.

ROYAL HORTICULTURAL AND ABORICULTURAL OF IRELAND.

The ninety-seventh annual general meeting of this Society was held at the offices, 5, Molesworth Street, Dublin, on December 21, 1926, with the President, the Marquis of Headfort, presiding. The report and balance sheet for the year ending December 1, 1926, disclosed a healthy and satisfactory condition of this veteran Irish Society. With an addition of 140 new members during the year the roll stands higher than hitherto in its history, and the cash balance showing a credit of £274 7s. 5d., with no liabilities, confirmed the President's optimistic views for the future.

Sir Frederick Moore, Hon. Secretary, made sympathetic reference to the Society's loss in the death of Sir John Ross of Bladensburg, K.C.V.O., a Vice-President for many years. The meeting was well attended, and a vote of thanks to the Chairman was passed by acclamation.

Obituary.

J. Cakebread.—It was with a deep sense of loss that I learned of the passing of an old friend, in the person of Mr. J. Cakebread, on Friday, December 17, for it is now many years since I first knew him, when he was gardener to the first Sir Philip Rose, Bt., and his son, the late Sir Philip Rose, Bt., at Rayners, Penn, Buckinghamshire, at the time my late father was bailiff on the same estate. They were colleagues for upwards of a quarter of a century, and the amicable way in which they worked together during those years was a fine example to all men. Mr. Cakebread was in his post for about forty years, and was a keen and clever all-round gardener, making a speciality of fruit, and particularly of Strawberries in pots; he was a well-known exhibitor, winning many successes at the London and other shows of his day. For many years he was Churchwarden at the Church at Tylers Green, near Penn, where he was laid to rest on Wednesday, December 22. His wife, who is only a few months younger, survives, as do two sons and a daughter, and the many that knew him will, I know, extend their heartfelt sympathy to the family of this worthy craftsman who had reached the advanced age of ninety-three years. *E. Beckett.*

TRADE NOTE.

During the past year, Messrs. Sutton and Sons received a visit from H.R.H. The Prince of Wales, who inspected their trial grounds and planted a tree to commemorate his visit. On the occasion of the Royal Agricultural Society's show at Reading, the firm's exceptionally fine demonstration garden, and their exhibit of 20,000 spikes of Sweet Peas, were greatly admired by their Majesties, King George and Queen Mary. In addition to Royal favours, Messrs. Sutton and Sons were particularly successful at prominent exhibitions in 1926, once again winning the Sherwood Cup for the most meritorious group at the great Chelsea Show, and obtaining both the Bath and Eastbourne Cups at the National Sweet Pea Society's show at Cheltenham, as well as two Gold Medals. During 1926, the Reading firm were awarded in all, five cups, a set of Coalport China (Shrewsbury Floral Fête), and thirty-three Gold Medals—a record of which even Messrs. Sutton and Sons may be justifiably proud.

MARKETS.

COVENT GARDEN, Tuesday, December 28th, 1926.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d.	s. d.
Adiantum cuneatum per doz.	10 0	12 0
—elegans	10 0	15 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus	12 0	18 0
—Sprengeri	12 0	18 0
Aspidistra, green	36 0	60 0
Asplenium, doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray —12's, 15's	5 0	7 0
Cyclamens, 48's, per doz.	18 0	21 0
Chrysanthemums, in variety, 48's, per doz.	18 0	30 0
Crotons, doz.	30 0	45 0
Cyrtomium	10 0	25 0

	s. d.	s. d.
Erica gracilis, 48's, per doz.	24 0	36 0
—60's, per doz.	9 0	12 0
—hyemalis, 48's per doz.	24 0	30 0
—60's, per doz.	12 0	15 0
—nivalis, 48's, per doz.	24 0	36 0
—60's ,,	12 0	15 0
—72's ,,	8 0	9 0
Hydrangeas, white, 48's per doz.	24 0	30 0
Nephrolepsis in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	30 0	48 0
—60's	15 0	18 0
Pteris, in variety	10 0	15 0
—large, 60's	5 0	6 0
—small	4 0	5 0
—72's, per tray of 15's	2 6	3 0
Solanums, 48's, per doz.	12 0	18 0
—60's, per doz.	9 0	10 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	15 0	18 0
cuneatum, per doz. bun.	10 0	12 0
Asparagus plumosus per bun., long trails, 6's	2 6	3 6
med. sprays	1 6	2 6
short	0 9	1 3
—Sprengeri, bun. long sprays	2 0	2 6
med. ,,	1 6	2 0
short ,,	0 6	9 0
Bouvardia, white per doz. bun.	12 0	15 0
Camellias, 12's, 18's per box	3 6	4 0
Carnations per doz. blooms	6 0	8 0
Chrysanthemums, white, per doz.	6 0	7 0
—bronze ,,	5 0	6 0
—white, per doz. bun.	21 0	27 0
—bronze, per doz. bun.	21 0	24 0
—yellow, per doz. blooms	5 0	7 0
—yellow, per doz. bun.	24 0	30 0
—pink, per doz. blooms	5 0	7 0
—pink, per doz. bun.	24 0	30 0
—red, per doz. blooms	4 6	5 0
— red per doz. bun.	21 0	24 0
Croton leaves, per doz.	1 9	2 6
Daffodils, per doz. bun.	42 0	48 0
Fern, French, per doz. bun.	10 0	12 0
French Flowers—		
—Acacia (Mimosa), per doz. bun.	15 0	16 0
—Eucalyptus, per pad	6 0	7 0
—Ruscus, green, per pad	6 0	8 0
—Myrtle, green, per doz. bun.	1 6	2 0
—Narcissus, Papar White, per doz. bun.	5 0	6 0
—Solanum berries, 300's, per pad	6 0	7 0

	s. d.	s. d.
French Flowers—		
—Violets, Parma, per bun.	7 0	9 0
Gardenias, 12's, 18's, per box	8 0	12 0
Heather, white, per doz. bun.	6 0	9 0
—pink, per doz. bun.	6 0	8 0
Honesty, per doz. bun.	15 0	18 0
Hyacinths on bulbs, per doz.	12 0	15 0
Lilac, white, per doz. stems	6 0	8 0
Lilium longiflorum, long, per doz.	8 0	9 0
—speciosum rubrum, long, per doz. blooms	4 6	5 0
—short, doz. blooms	2 6	3 0
Lily-of-the-Valley, per doz. bun.	30 0	36 0
Marguerites, yellow, per doz. bun.	—	—
Orchids, per doz.		
—Cattleyas	24 0	36 0
—Cypripediums per doz. blooms	6 0	8 0
Ranunculus—		
—double scarlet	9 0	12 0
—yellow	15 0	19 0
Richardias (Arums), per doz. blooms	12 0	15 0
Roses, per doz. blooms—		
—Madame Abel Chatenay	6 0	7 0
—Molly Sharman Crawford	8 0	9 0
—Richmond	15 0	18 0
—Golden Ophelia	12 0	15 0
—Madame Butterfly	15 0	18 0
—Safrano, 24's, per packet	4 0	5 0
Smilax, per doz. trails	3 0	4 0
Tulips on bulbs, per doz.	3 0	4 0
—single white	24 0	30 0
— —yellow	36 0	48 0
— —scarlet	18 0	30 0
— —pink	—	—
Violets...	3 0	4 0

Remarks.—A full supply of Chrysanthemums was maintained during the Christmas week with the exception of good bronze and yellow blooms, and prices remained normal. The colder weather was responsible for a shortage of Carnations and Roses, and the latter flowers advanced considerably in value towards the end of the week; good red blooms were very scarce on Christmas Eve. The prices of Lilium longiflorum and Richardias (Arums) gradually advanced during the week. The newest subjects in this department are Daffodils and Tulips, including a few Wm. Copland, which came to hand this morning. Supplies generally were shorter to-day and a further advance in prices is anticipated this week for all subjects.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, American—		
—Albemarle	25 0	30 0
—Oregon Newtown	12 0	13 0
— — Winesap	10 0	10 6
—Rome Beauty	9 0	10 0
—Nova Scotian—		
—Ribston Pippin, per barrel	22 0	26 0
—Blenheim Pippin, per barrel	22 0	26 0
—Stark, per barrel	18 0	24 0
—Others	18 0	20 0
Apples, English—		
—Lane's Prince Albert	8 0	12 0
—Newton Wonder	8 0	12 0
—Bramley's Seedling	10 0	20 0
—Californian Newtown Pippin	9 0	10 6
— — Winesap	9 0	10 0
Bananas	23 0	32 6
Brazils, per cwt.	80 0	85 0
Chestnuts, Redon, per bag	10 0	14 0
—Italian	15 0	16 0
—Naples	—	21 0
Cobnuts, per lb	0 6	0 7
Grape Fruit—		
—Blue Goose	25 0	30 0
—British Honduras	—	25 0

	s. d.	s. d
Grapes, English—		
—Colmar	1 6	3 6
—Alicante	1 6	3 6
—Muscat	8 0	12 0
Grapes Belgian	1 6	2 0
—Almeria	16 0	30 0
—Algerian Navel, per tray	7 0	8 0
Lemons, Messina, boxes	12 0	18 0
—cases	20 0	30 0
Oranges—		
—Denia	16 0	30 0
—Valencia	18 0	22 0
—Jamaica	21 0	22 0
—Algerian	6 6	8 6
Peaches, Belgian pr doz.	8 0	20 0
Pears, English...	6 0	10 6
—Belgian Comice, per doz.	6 0	10 0
Pears—		
—Californian		
—Winter Nelis, case	25 0	30 0
—Beurré D'Angou, case	25 0	30 0
Pines, case	20 0	25 0
Walnuts, Grenoble, bag.	10 0	12 0
—Naples, kiln dried	80 0	85 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, Devon	6 0	10 0
— — Paris Green	9 0	10 0
Beans—		
—best	5 0	8 0
—ordinary	3 0	4 0
Beets, per cwt.	5 0	6 0
Cabbage, per doz.	2 0	2 6
Carrots, per ½-bag	4 0	5 0
Cauliflowers—		
—English, doz.	3 0	5 0
—St. Malo, crate	6 0	8 0
Celery, fan	1 6	3 0
Cucumbers, per doz.	24 0	42 0
French Batavian	2 6	3 6
—Endive, per doz.	2 6	3 0
Lettuce round,, per doz.	1 6	2 6
Mint, forced, per doz.	4 0	8 0
Mushrooms		
—cups	2 6	3 6
—Broilers	2 0	2 3

	s. d.	s. d
Onions—		
Valencia	8 6	10 0
Parsnips, per cwt.	4 6	5 6
Potatos—		
—King Edward ton	£9,10	£9/15
—others, ton	£5/10	£7/10
Rhubarb, forced, per doz.	4 0	5 0
Savoys, per doz.	1 6	2 0
Seakale, per punnet	3 0	3 6
Sprouts, Brussels per ½-bag	2 6	5 0
Tomatos—		
—Canary Island	20 0	25 0
—English, pink new crop	6 0	9 0
—pink and white, new crop	6 0	9 0
Turnips, per cwt.	4 6	5 6

Remarks.—General trade conditions have been quite satisfactory. Supplies of fruits for Christmas were ample, and prices being reasonable, a considerable amount of fruit was disposed of. Imported Apples are slightly cheaper. A few English Apples are still available, but only Bramley's Seedling and Cox's Orange Pippin are in demand, other varieties being a very slow trade. Hot-house Grapes are selling well in spite of the competition of choice fruits from the Cape, which have arrived in good condition. Forced Beans are scarce and costly; a consignment of Beans from Madeira sold well. Mushrooms are more plentiful, but prices are steady and satisfactory from the growers' point of view. New Potatos from Guernsey, Scilly and the Azores are a fairly good trade. All salads have sold well, but at the time of writing the tendency is for quieter conditions in this section. A few Tomatos and Cucumbers are arriving, and, if of good quality, sell well. Trade in green vegetables is quiet, but Potatos are in firm request.

GLASGOW.

Cut flowers were very scarce and dear during Christmas week. The biggest advance conceded by buyers was for Roses, which were worth double the price obtained in the previous week. Pink varieties ranged from 10/- to 16/- per dozen; red from 10/- to 12/-; and white from 6/- to 8/-. Carnations appreciated by 3/- and 4/- to 7/6 and 10/-, while Narcissi rose to 20/- and 26/- per pad. Chrysanthemums are just about finished for the season, and the quality of the blooms was very mixed; Framfield Pink ranged from 4/- to 5/- per dozen; Favourite, W. Duckham, Mary Norris and Golden Glory, 2/- to 2/6 for 6's; Western King, 1/- to 1/6; Wilcox, 8d. to 1/6; Baldock's Crimson, 7d. to 1/6; and Winter Cheer (Dunstable-grown), 8d. to 1/3. Tulips in pans made 2/- to 2/6; Holly, 2/- to 4/- per small bag, 4/- to 6/-, large; Christmas Trees, 6d. 9d. and 1/- per foot. There were no arrivals of Mistleto. Solanum berries declined from 8/- to 10/- per pad, to 4/- and 6/-; while Ruscus was 4/- down at 10/- to 12/- per double pad.

The fruit market was fairly active, but prices remained steady and unchanged. Apples were in moderate demand at previous quotations, and while Jaffa Oranges at 12/6 to 15/- per case were cheap, Valencia 300's were dearer at 23/-; Mandarin varied from 1/2 to 2/4 per tray., and Blue Goose Grape Fruit averaged 35/-. Scotch Cohmar Grapes were unaltered at 3/6 to 3/9 per lb; Almerias were cheaper at 32/- per barrel.

ANSWERS TO CORRESPONDENTS.

Fumigating Adiantum Ferns.—*S. I.* Fumigating with Xl All Nicotine should not harm Maidenhair Ferns and vines, but do not use the specific at full strength when the foliage is young.

Names of Fruit.—*E. M.* 1, Newton Wonder; 2, not recognised.—*H. B. O. B.* A, not recognised; badly deformed; B, Nec Plus Meuris. *J. C. W. & S.* Tower of Glamis.

Pear Trees Failing to Fruit Satisfactorily.—*T. E.* The name is Pitmaston Duchess, and not as you spell it; it is a very fertile variety and a strong grower. From your statement of the tree making robust growth, flowering freely and failing to fruit, root-pruning is necessary, and this should be done at once. Pruning the strong shoots as you have done only results in a thicket of strong growths each succeeding year, and as you have dug down to the roots of the trees and nourished them with manure, this has accentuated the trouble. Open out a trench a few feet from the stem of the tree, and when you have dug down about one-and-a-half feet or two feet, excavate beneath the roots and endeavour to find out if there are any very strong ones growing in a downward direction. These should be severed, and if you can get at them, make the ends smooth with a sharp knife.

Repairing a Mulberry Tree.—*H. A.* Rather than fill the large crack in the trunk with clay or cement, we should prefer to use a dry material, such as broken brick or crocks: fill to within a few inches of the surface and then crown the cavity carefully with the bitumen. We assume that the damage is recent, otherwise it will be advisable to thoroughly clear out all decayed matter and dress with creosote or Stockholm tar. The cavity should be as dry as possible before it is filled and crowned.

Weevils eating the Roots of Maidenhair Ferns.—*J. P.* The grubs are the larvae of the Vine Weevil. The great difficulty of detecting weevils is due to the fact that they feed principally at night, hiding by day. An old method of reducing their numbers is to enter the greenhouse at night with a lantern and catch them on the plants, or if you stand the plants on a white sheet and disturb them by a light at night, they will fall on the sheet and be easily caught. The larvae are more difficult to catch, and for their destruction carbon bi-sulphide injected in the soil near the roots of the plants is to be recommended. Make holes with a piece of stiff wire and pour about a teaspoonful of carbon bi-sulphide into each hole. This fluid is very inflammable and needs care in handling.

Woolly Aphis.—*C. R. I.* It is doubtful whether Carbokrimp, applied at the usual winter strength and during the winter period would have any effect upon woolly aphis, because this pest is probably then in a state of hibernation in inaccessible places. You are no doubt aware that the woolly aphis migrates to the roots of the tree in such periods, and only a flooding of the soil with a solution of Carbokrimp is likely to reach them, and it is open to debate whether the application of a fluid would have any effect at a concentration which would not be detrimental to the tree. Therefore, it is quite the usual procedure to paint the little nests of woolly aphis with Carbokrimp when they are above ground, particularly in the summertime. At the same time, canker wounds which are often attacked by woolly aphis will respond to a painting with Carbokrimp at a strength ranging from twenty-five per cent. to the neat material, this depending upon the stem, twig or branch to be treated.

Communications Received.—D. R.—W. B.—H. H. F. W.—W. A.—J. C.—H. S.—G. S.

SB 4
G21

Gardeners Chronicle Jan 8 '87

THE GARDENERS' CHR

The Dates of Meetings supplied by the Secretaries of the respective Societies are as complete as circumstances

☞ During the operation of the Summer Time Act the times giv

JANUARY.

1	S	Blackburn Hort. Soc. meets.
2	**S**	Wakefield and N. of E. Tulip Soc. meets.
3	M	Romsey Gardeners' Assn. Ann. Meet.
4	Tu	Roy. Caledonian Hort. Soc. meets; Bolton Hort. Soc. meets.
5	W	Nottingham and Notts. Chrys. Soc. meets.
6	Th	Manchester and N. of England Orchid Soc. meets.
7	F	Dundee Hort. Soc. lecture; Accrington Chrys. Soc. meets.
8	S	Sun rises, 8 hrs. 6 mins.
9	**S**	*1st Sunday after Epiphany.*
10	M	United Hort. Ben. and Prov. Soc. meets; Birmingham and Mid. Counties Gdnrs'. M. I. Soc. Ann. Meet.; N.C.S. Floral Com. meets.
11	Tu	Roy. Hort. Soc. Coms. meet; Hort. Club Dinner and Lecture; Wimbledon Gardeners' Soc. meets.
12	W	Glasgow and W. of Scotland Hort. Soc. meets; Burton-on-Trent Chrys. Soc. meets.
13	Th	Sun rises, 8 hrs. 3 mins.
14	F	Buxton Chrys. Soc. Ann. Meet; Orchid Club meets; R.H.S. of Ireland meets.
15	S	Sun sets, 4 hrs. 17 mins.
16	**S**	*2nd Sunday after Epiphany.*
17	M	Full moon, 10.27 p.m.
18	Tu	Winchester Hort. Soc. meets.
19	W	Sheffield Chrys. Soc. Ann. Meet.; Nottingham and Notts. Chrys. Soc. Ann. Meet.
20	Th	Ipswich Gardeners' Assn. meets;
21	F	Dundee Hort. Soc. Ann. Meet.; Manchester and N. of E. Orchid Soc. meets; Brit. Florists' Fed. Ann. Meet. and Dinner.
22	S	Sun sets, 4 hrs. 28 mins.
23	**S**	*3rd Sunday after Epiphany.*
24	M	Nat. Chrys. Soc. Executive Com. meets.
25	Tu	Roy. Hort. Soc. Coms. meet; Gardeners' Roy. Benevolent Inst. Ann. Meet. at Simpson's Restaurant, Strand; Wimbledon Gardeners' Soc. meets; Brit. Carnation Soc. Ann. Meet.
26	W	Moon, last quarter, 2.5 a.m.
27	Th	Paisley Florists' Soc. meets.
28	F	Assn. of Economic Biologists meet.
29	S	Lancaster Hort. Soc. Lecture.
30	**S**	*4th Sunday after Epiphany.*
31	M	Harrogate Hort. Assn. meets.

FEBRUARY.

1	Tu	Roy. Caledonian Hort. Soc. meets; Bolton Hort. Soc. meets.
2	W	Nottingham and Notts. Chrys. Soc. meets; New moon, 8.54 a.m.
3	Th	Manchester and N. of E. Orchid Soc. meets.
4	F	Dundee Hort. Soc. lecture; Accrington Chrys. Soc. meets.
5	S	Blackburn Hort. Soc. meets.
6	**S**	Wakefield and N. of E. Tulip Soc. meets.
7	M	Nat. Chrys. Soc. Ann. Meet.; Romsey Gardeners' Soc. meets.
8	Tu	Roy. Hort. Soc. Coms. meet; Ann. meet. 3 p.m.; Hort. Club Dinner and Lecture; Wimbledon Gardeners' Soc. meets.
9	W	Glasgow and W. of Scotland Soc. meets; Sheffield Chrys. Soc. meets.
10	Th	Sun rises, 7 hrs. 27 mins.
11	F	Orchid Club meets: R.H.S. of Ireland meets; Post Office Savings Bank Hort. Soc. Lecture.
12	S	Chas. Darwin b. 1809.
13	**S**	*Septuagesima.*
14	M	United Hort. Ben. and Prov. Soc. meets.
15	Tu	Winchester Hort. Soc. meets.
16	W	Roy. Gardeners' Orphan Fund Ann. Meet; Full moon, 4.18 p.m.
17	Th	Wallington Hort. Soc. lecture; Ipswich Gardeners' Assn. meets.
18	F	Manchester and N. of E. Orchid Soc. meets.
19	S	Sun rises, 7 hrs. 10 mins.
20	**S**	*Sexagesima.*
21	M	Sun sets, 5 hrs. 23 mins.
22	Tu	Roy. Hort. Soc. Coms. meet; Wimbledon Gardeners' Soc. meets.
23	W	Sheffield Chrys. Soc. meets.
24	Th	Paisley Florists' Soc. meets; Moon, last quarter, 8.42 p.m.
25	F	Assn. of Economic Biologists meet.
26	S	Lancaster Hort. Soc. Lecture.
27	**S**	*Quinquagesima.*
28	M	Harrogate Hort. Assn. meets.

MARCH.

1	Tu	*Shrove Tuesday.* Roy. Caledonian Hort. Soc. meets; Bolton Hort. Soc. meets.
2	W	*Ash Wednesday.* Nottingham and Notts. Chrys. Soc. meets.
3	Th	Manchester and N. of England Orchid Soc. meets; New moon, 7.25 p.m.
4	F	Dundee Hort. Soc. lecture; Accrington Chrys. Soc. meets; Post Office Savings Bank Hort. Soc. Lecture.
5	S	Blackburn Hort. Soc. meets.
6	**S**	Wakefield and N. of England Tulip Soc. meets.
7	M	Romsey Gardeners' Assn. meets.
8	Tu	Roy. Hort. Soc. Coms. meet (2 days); Hort. Club Dinner and Lecture; Jersey Gdnrs'. Soc. meets; Wimbledon Gdnr'. Soc. meets.
9	W	Glasgow and W. of Scotland Soc. meets; Sheffield Chrys. Soc. meets.
10	Th	Ipswich Gardeners' Assn. meets; Moon, first quarter, 11.3 a.m.
11	F	Orchid Club meets; Roy. Hort. Soc. of Ireland meets.
12	S	Lancaster Hort. Soc. Lecture.
13	**S**	*2nd Sunday in Lent.*
14	M	United Hort. Ben. and Prov. Soc. Ann. Meet.
15	Tu	Winchester Hort. Soc. meets.
16	W	Roy. Gardeners' Orphan Fund meets.
17	Th	*St. Patrick's Day.* Wallington Hort. Soc. lecture.
18	F	Manchester and N. of E. Orchid Soc. meets; Full moon, 10.24 a.m.
19	S	Roy. Norfolk Agricultural Assn.'s Ex.
20	**S**	*3rd Sunday in Lent.*
21	M	Spring Equinox.
22	Tu	Roy. Hort. Soc. Coms. meet (2 days): Wimbledon Gardeners' Soc. meets.
23	W	Sheffield Chrys. Soc. meets.
24	Th	John Evelyn d. 1698.
25	F	*Lady Day.* Assn. of Economic Biologists meet.
26	S	Moon, last quarter, 11.35 a.m.
27	**S**	*4th Sunday in Lent.*
28	M	Harrogate Hort. Assn. meets.
29	Tu	British Carnation Soc. Ex. (2 days).
30	W	Sun rises, 5 hrs. 44 mins.
31	Th	Paisley Florists' Soc. meets.

JULY.

1	F	Nat. Rose Soc. Ex. (2 days).
2	S	Blackburn Hort. Soc. meets.
3	**S**	Wakefield and N. of E. Tulip Soc. meets.
4	M	Post Office Savings Bank Hort. Soc. Ex.: Romsey Gardeners' Assn. meets.
5	Tu	Roy. Hort. Soc. Coms. meet; Roy. Agric. Soc. of England Ex. (5 days); Roy. Caledonian Hort. Soc. meets.
6	W	Nat. Rose Soc. Prov. Ex. in conjunction with Cheltenham Spa Floral Fête (2 days); Brighton, Hove and Sussex Hort. Soc. Ex. (2 days); Croydon Hort. Soc. Ex.
7	Th	Nat. Sweet Pea Soc. Ex. (2 days).
8	F	Bath Hort. Soc. Ex. (2 days); Roy. Hort. Soc. of Ireland meets.
9	S	Windsor, Eton and Dis. Rose Soc. Ex.
10	**S**	*4th Sunday after Trinity.*
11	M	United Hort. Ben. and Prov. Soc. meets.
12	Tu	Roy. Hort. Soc. Coms. meet; Wolverhampton Floral Fête (3 days); Peterboro' Agric. Soc. Ex. (3 days); Roundhay (Leeds) Hort. Soc. Ex. (2 days).
13	W	Liverpool Hort. Assn.'s Ex. (2 days): Sheffield Chrys. Soc. meets; Guildford Gardeners' Assn.'s Ex.
14	Th	Full moon, 7.22 p.m.
15	F	Nat. Rose Soc. Ex.
16	S	Dundee Hort. Soc. Outing.
17	**S**	*5th Sunday after Trinity.*
18	M	Harrogate Hort. Assn. meets.
19	Tu	Roy. Hort. Soc. Coms. meet; Nat. Carnation and Picotee Soc. Ex.
20	W	Roy. Gardeners' Orphan Fund meets.
21	Th	Moon, last quarter, 2.43 p.m.
22	F	Sun rises, 4 hrs. 10 mins.
23	S	Sun sets, 10 hrs. 1 min.
24	**S**	*6th Sunday after Trinity.*
25	M	Sun rises, 4 hrs. 14 mins.
26	Tu	Dorset Hort. Soc. Ex. (2 days).
27	W	Sun sets, 7 hrs. 55 mins.
28	Th	Roy. Lancashire Agric. Soc. Ex. (4 days); Paisley Flor. Soc. meets; New moon, 5.36 p.m.
29	F	Roy. Welsh Agricultural Soc. Ex. (4 days)
30	S	Harrogate Hort. Assn.'s Ex.
31	**S**	*7th Sunday after Trinity.*

AUGUST.

1	M	Kings Lynn Hort. Soc. Ex.; Wadhurst Gdning. Assn.'s Ex; Romsey Gardeners' Assn. meets.
2	Tu	Roy. Caledonian Hort. Soc. meets.
3	W	Roy. Hort. Soc. Coms. meet: Scottish Nat. Sweet Pea, Rose and Carnation Soc. Ex. (2 days); Northampton Hort. Soc. Ex. (2 days); R. H. S. of Ireland Ex. (3 days).
4	Th	Harrogate Agric. Soc. Ex. (3 days).
5	F	Accrington Chrys. Soc. meets; Moon, first quarter, 6.5 p.m.
6	S	Blackburn Hort. Soc. meets.
7	**S**	Wakefield and N. of E. Tulip Soc. meets.
8	M	United Hort. Ben. & Prov. Soc. meets.
9	Tu	Jersey Gardeners' Soc. meets.
10	W	Nat. Gladiolus Soc. Ex. (2 days) in conjunction with the Taunton Deane Hort. Soc. Ex.; Sheffield Chrys. Soc. meets.
11	Th	Sun rises, 4 hrs. 39 mins.
12	F	Sun sets, 7 hrs., 28 mins.
13	S	Full moon, 4.37 a.m.
14	**S**	*9th Sunday after Trinity.*
15	M	Harrogate Hort. Assn. meets.
16	Tu	Roy. Hort. Soc. Coms. meet; Clay Cross Hort. Soc. Ex.
17	W	Bangor Hort. Soc. Ex. (2 days); Shrewsbury Flower Show (2 days).
18	Th	Roy. Hort. Soc. of Aberdeen Ex. (3 days).
19	F	Montrose Hort. Soc. Ex. (2 days); Moon, last quarter, 7.54 p.m.
20	S	L.M.S. Rly. Hort. Soc. Ex.; Charfield Flower Show.
21	**S**	*10th Sunday after Trinity.*
22	M	Sun rises, 4 hrs. 56 mins.
23	Tu	Sun sets, 7 hrs. 6 mins.
24	W	Southport Flower Show (3 days); Littlehampton Hort. Soc. Ex.
25	Th	Dundee Hort. Soc. Ex. (3 days); Paisley Florists' Soc. meets.
26	F	Sun rises, 3 hrs. 3 mins.
27	S	New Moon, 6.45 a.m.
28	**S**	*11th Sunday after Trinity.*
29	M	Roy. English Arboricultural Soc. meets (5 days).
30	Tu	Roy. Hort. Soc. Coms. meet.
31	W	Sun sets, 6 hrs. 49 mins.

SEPTEMBER.

1	Th	Paisley Florists' Soc. Ex. (2 days); Roy. West Renfrewshire Hort. Soc. Ex. (2 days).
2	F	London Dis. Allotments Show at R.H.S. Hall (2 days); Accrington Chrys. Soc. meets.
3	S	Hemel Hempstead Hort. Soc. Ex.: Blackburn Hort. Soc. meets.
4	**S**	Wakefield and N. of E. Tulip Soc. meets: Moon, first quarter, 10.41 a.m.
5	M	Romsey Gardeners' Assn. meets.
6	Tu	Roy. Caledonian Hort. Soc. meets.
7	W	Nottingham and Notts. Chrys. Soc. meets.
8	Th	Sun rises, 5 hrs. 24 mins.
9	F	Nat. Rose Soc. Ex. (2 days); Roy. Hort. Soc. of Ireland meets.
10	S	Brussels Int. Hort. Ex. (9 days).
11	**S**	Genetic Conference at Berlin (8 days): Full moon, 0.54 p.m.
12	M	United Hort. Ben. and Prov. Soc. meets: Harrogate Hort. Assn. meets; Nat. Chrys. Soc. Floral Com. meets.
13	Tu	Roy. Hort. Soc. Vegetable Ex.; Jersey Gardeners' Soc. meets.
14	W	Roy. Caledonian Hort. Soc. Ex. (2 days); Nat. Dahlia Soc. Ex.; North of England Hort. Soc. Ex. (3 days); Sheffield Chrys. Soc. meets.
15	Th	Sun rises, 5 hrs. 35 mins.
16	F	Sun sets, 6 hrs. 13 mins.
17	S	
18	**S**	Moon, last quarter, 3.30 a.m.
19	M	Sun rises, 5 hrs. 41 mins.
20	Tu	Post Office Savings Bank Hort. Soc. Ex.
21	W	Sun sets, 6 hrs. 2 mins.
22	Th	Ipswich Gardeners' Assn. meets.
23	F	Sun rises, 5 hrs. 47 mins.
24	S	Autumn equinox.
25	**S**	New moon, 10.11 p.m.
26	M	Nat. Chrys. Soc. Floral and Ex. Coms. meet.
27	Tu	
28	W	Roy. Hort. Soc. Ex. at Holland Park Hall (3 days); Glasgow and W. of Scotland Soc. meets.
29	Th	Paisley Florists' Soc. meet.
30	F	Sun sets, 5 hrs. 41 mins.

ONICLE ALMANAC, 1927.

will allow, but some appointments are not made at the time of publication, and others are liable to alteration.
n for Astronomical and other notes must be altered accordingly.

APRIL.

1	F	Accrington Chrys. Soc. meets.
2	S	Paisley Florists' Soc. Ex.; Blackburn Hort. Soc. meets; New moon, 4.24 a.m.
3	**S**	Wakefield and N. of E. Tulip Soc. meets.
4	M	Romsey Gardeners' Assn. meets.
5	Tu	Roy.Soc.Hort.Coms.meet (2 days); Hort. Club Dinner and Lecture; Roy. Caledonian Hort. Soc. meets; Wimbledon Gardeners' Soc. meets.
6	W	Falmouth Spring Flower Show (2 days); Brighton, Hove and Sussex Hort. Soc. Ex. (2 days); R.H.S. of Ireland Spring Ex. (2 days).
7	Th	Manchester and N. of E. Orchid Soc. meets.
8	F	R.H.S. of Ireland meets.
9	S	Moon, first quarter, 0.21 a.m.
10	**S**	*Palm Sunday.*
11	M	United Hort. Ben. and Prov. Soc. meets.
12	Tu	Roy. Hort. Soc. Narcissi Show (2 days); Jersey Gardeners' Soc. meets.
13	W	Glasgow and W. of Scotland Soc. meets; Sheffield Chrys. Soc. meets.
14	Th	Ipswich Gardeners' Assn. meets.
15	F	*Good Friday.*
16	S	Sun rises, 5 hrs. 6 mins.
17	**S**	*Easter Sunday*; Full moon, 3.35 a.m.
18	M	*Easter Monday; Bank Holiday.*
19	Tu	*Primrose Day*; Winchester Hort. Soc. meets.
20	W	Herefordshire Spring Flower Show; Roy. Gardeners' Orphan Fund meets.
21	Th	North of England Hort. Soc. Ex. (2 days).
22	F	Nat. Rose Soc. Ex.; Manchester and N. of E. Orchid Soc. meets.
23	S	*St. George's Day.*
24	**S**	*Low Sunday*; Moon, last quarter, 10.21 p.m.
25	M	Harrogate Hort. Assn. meets.
26	Tu	Roy. Hort. Soc. Coms. meet (2 days).
27	W	Sheffield Chrys. Soc. meets.
28	Th	Paisley Florists' Soc. meets.
29	F	Sun rises, 4 hrs. 40 mins.
30	S	Sun sets, 7 hrs. 18 mins.

MAY.

1	**S**	Wakefield and N. of E. Tulip Soc. meets; New moon, 0.40 p.m.; Sun rises, 5 hrs. 24 mins.
2	M	Romsey Gardeners' Assn. meets.
3	Tu	Rhododendron Soc. Ex. (2 days); Roy. Caledonian Hort. Soc. meets.
4	W	Nottingham and Notts. Chrys. Soc. meets.
5	Th	Manchester and N. of E. Orchid Soc. meets.
6	F	Accrington Chrys. Soc. meets; Orchid Club meets.
7	S	Blackburn Hort. Soc. meets.
8	**S**	Moon, first quarter, 3.27 p.m.; Sun sets, 8 hrs. 32 mins.
9	M	United Hort. Ben. and Prov. Soc. meets.
10	Tu	Roy. Hort. Soc. Coms. meet (2 days); Hort. Club Dinner and Lecture; Nat. Tulip Soc. Ex. (2 days, prov.); Jersey Gardeners' Soc. meets.
11	W	Sheffield Chrys. Soc. meets.
12	Th	Sun rises, 5 hrs. 14 mins.
13	F	Assn. of Economic Biologists meet; R.H.S. of Ireland meets.
14	S	Sun sets, 8 hrs. 42 mins.
15	**S**	*4th Sunday after Easter.* [8 mins.
16	M	Full moon, 7.3 p.m.; Sun rises, 5 hrs.
17	Tu	
18	W	Roy. Gardeners' Orphan Fund meets.
19	Th	
20	F	Manchester and N.of E.Orchid Soc.meets.
21	S	Wakefield and N. of E. Tulip Soc. Ex. (4 days).
22	**S**	*Rogation Sunday.*
23	M	Harrogate Hort. Assn. meets.
24	Tu	*Empire Day.* Moon, last quarter, 5.34 a.m.
25	W	Roy. Hort. Soc. Chelsea Show (3 days); Soc. Nat. d'Horticultural de France Ex. in Paris (10 days).
26	Th	*Ascension Day.* Paisley Florists' Soc. meets
27	F	Sun rises, 3 hrs. 56 mins.
28	S	Sun sets, 10 hrs. 6 mins.
29	**S**	*Sunday after Ascension.*
30	M	New Moon 9.6 p.m.
31	Tu	Sun rises, 3 hrs. 52 mins.

JUNE.

1	W	Nottingham and Notts. Chrys. Soc. meets.
2	Th	Iris Soc. Ex. at R.H.S. Hall.
3	F	Accrington Chrys. Soc. meets.
4	S	Blackburn Hort. Soc. meets.
5	**S**	*Whit Sunday.* Wakefield and N. of E. Tulip Soc. meets.
6	M	*Bank Holiday.*
7	Tu	Roy. Caledonian Hort. Soc. meets: Moon, first quarter, 7.49 a.m.
8	W	Sheffield Chrys. Soc. meets; Roy. Hort. Soc. Coms. meet (2 days).
9	Th	
10	F	R.H.S. of Ireland meets; Manchester and N. of E. Orchid Soc. Ann. Meet.
11	S	Dundee Hort. Soc. outing.
12	**S**	*Trinity Sunday.*
13	M	Romsey Gardeners' Assn. meets; United Hort. Ben. & Prov. Soc. meets.
14	Tu	Jersey Gardeners' Soc. meets.
15	W	Roy. Gardeners' Orphan Fund meets: Full moon, 8.19 a.m.
16	Th	Sun rises, 3 hrs. 44 mins.
17	F	Sun sets, 10 hrs. 17 mins.
18	S	
19	**S**	*1st Sunday after Trinity.*
20	M	Harrogate Hort. Assn. meets. Int. Com. Hort. Conf., Geneva (6 days).
21	Tu	Roy. Hort. Soc. Coms. meet (2 days).
22	W	Wadhurst Rose Show; Summer solstice: Moon, last quarter, 10.29 a.m.
23	Th	
24	F	*Midsummer Day.*
25	S	Wallington Hort. Soc. Ex.
26	**S**	*2nd Sunday after Trinity.*
27	M	
28	Tu	Roy. Hort. Soc. Amateur Show.
29	W	Roy. Norfolk Agricultural Assn.'s Ex. (2 days); New moon, 6.32 a.m.
30	Th	Newport (Mon.) Hort. Soc. Rose Ex.; Paisley Florists' Soc. meets.

OCTOBER.

1	S	Wallington Hort. Soc. Ex.; Blackburn Hort. Soc. meets.
2	**S**	Wakefield and N. of E. Tulip Soc. meets.
3	M	Romsey Gardeners' Assn. meets.
4	Tu	Roy. Caledonian Hort. Soc. meets; Bolton Hort. Soc. meets; Moon, first quarter, 2.2 a.m.
5	W	Nottingham and Notts. Chrys. Soc. meets.
6	Th	Sun rises, 6 hrs. 9 mins.
7	F	Dundee Hort. Soc. lecture; Accrington Chrys. Soc. meets.
8	S	Sun sets, 5 hrs. 23 mins.
9	**S**	*17th Sunday after Trinity.*
10	M	United Hort. Ben. and Prov. Soc. meets; Nat. Chrys. Soc. Floral Com. meets.
11	Tu	Roy. Hort. Soc. Fruit Show (2 days); Jersey Gardeners' Soc. meets.
12	W	Sheffield Chrys. Soc. meets; Wimbledon Gardeners' Soc. meets.
13	Th	Sun rises, 6 hrs. 20 mins.
14	F	Roy. Hort. Soc. of Ireland meets.
15	S	Sun sets, 5 hrs. 7 mins.
16	**S**	*18th Sunday after Trinity.*
17	M	Nat. Chrys. Soc. Floral and Ex. Coms. meet; Moon, last quarter, 2.32 p.m.
18	Tu	Roy. Hort. Soc. Coms. meet.
19	W	Roy. Gardeners' Orphan Fund meets.
20	Th	Wallington Hort. Soc. lecture; Ipswich Gardeners' Assn. meets.
21	F	Assn. of Economic Biologists meet.
22	S	Sun rises, 6 hrs. 36 mins.
23	**S**	*19th Sunday after Trinity.*
24	M	Sun sets, 4 hrs. 49 mins.
25	Tu	New moon, 3.37 p.m.
26	W	Glasgow and W. of Scotland Soc. meets; Sheffield Chrys. Soc. meets; Wimbledon Soc. meets.
27	Th	Paisley Florists' Soc. meets.
28	F	Sun rises, 6 hrs. 46 mins.
29	S	Sun sets, 4 hrs. 39 mins.
30	**S**	*20th Sunday after Trinity.*
31	M	John Evelyn, b. 1620.

NOVEMBER.

1	Tu	Roy. Hort. Soc. Coms. meet; Croydon Chrys. Soc. Ex.; West of England Chrys. Soc. Ex.(3 days); Roy.Caledonian Hort.Soc.meets.
2	W	Kingston and Surbiton Chrys. Soc. Ex.; Guildford Chrys. Soc. Ex. (2 days); Taunton Chrys. Soc. Ex. (2 days); Glasgow and W. of Scotland Soc. Ann. meet; Forest Hill Chrys. Soc.Ex.; Faversham Chrys.Assn.'sEx.(2days).
3	Th	Nat. Chrys. Soc. Ex. (2 days): Henfield
4	F	Dundee Hort. Soc. lecture. [Chrys. Soc. Ex.
5	S	Accrington Chrys. Soc. Ex.
6	**S**	Wakefield and N. of E. Tulip Soc. meets.
7	M	Romsey Gardeners' Assn. meets.
8	Tu	Jersey Gardeners' Soc. meets.
9	W	Wimbledon Gardeners' Soc. Ex.: Gloucestershire Root, Fruit and Grain Soc. Ex.; Sheffield Chrys. Soc. Ex. (3 days); Harro-Hort.Assn.'s Ex.; Oxfordshire,Fl.Sh.(2 days).
10	Th	Jersey Gardeners' Soc. Ex.; Sheffield Chrys. Soc Ex. (3 days); Hitchin Chrys. Soc. Ex.; Nottingham Chrys. Ex. (3 days)
11	F	Blackburn Hort. Soc. Ex. (2 days); Whitley Bay Chrys. Soc. Ex. (2 days).
12	S	Burton-on-Trent Chrys. Soc. Ex.
13	**S**	*22nd Sunday after Trinity.* [meet.
14	M	Nat. Chrys. Soc. Floral and Ex. Coms.
15	Tu	Roy. Hort. Soc. Coms. meet (2 days); Lancaster Hort. Soc. Ex.
16	W	Hull Chrys. Sh.(2 days); Buxton Chrys.Sh.
17	Th	Ipswich Gardeners' Assn. Ex.; Newport (Mon.) Hort. Soc. Ex.
18	F	Bolton Hort. Soc. Ex. (2 days); Leicester
19	S	Sun rises, 7hrs. 25 min. [Chrys.Soc.Ex.(2 days).
20	**S**	*23rd Sunday after Trinity.*
21	M	Sun sets, 4 hrs. 3 mins.
22	Tu	
23	W	Wimbledon Gardeners' Soc. meets.
24	Th	Paisley Florists' Soc. meets; New moon,
25	F	Sun rises, 7 hrs. 35 mins. [10.9 a.m.
26	S	Sun sets, 3 hrs. 57 mins.
27	**S**	*1st Sunday in Advent.*
28	M	Nat. Chrys. Soc. Floral Com. meets.
29	Tu	Roy. Hort. Soc. Coms. meet; Nat. Dahlia
30	W	[Soc. Annual Meet·

DECEMBER.

1	Th	Sun rises, 7 hrs. 44 mins.
2	F	Accrington Chrys. Soc. meets: Moon, first quarter, 2 14 a.m.
3	S	Sun sets, 3 hrs. 52 mins.
4	**S**	Wakefield and N. of E. Tulip Soc. meets.
5	M	Romsey Gardeners' Assn. meets: Harrogate Hort. Assn. meets.
6	Tu	Roy. Caledonian Hort. Soc. meets: Bolton Hort. Soc. meets.
7	W	Glasgow and W. of Scotland Soc. meets: Sheffield Chrys. Soc. Ann. Dinner; Wimbledon Gardeners' Soc. meets.
8	Th	Full moon, 5.32 p.m.
9	F	Roy. Hort. Soc. of Ireland meets.
10	S	
11	**S**	*3rd Sunday in Advent.*
12	M	United Hort. Ben. and Prov. Soc. meets: Nat. Chrys. Soc. Floral and Ex. Coms. meet.
13	Tu	Roy. Hort. Soc. Coms. meet; Jersey Gardeners' Soc. meets.
14	W	Wimbledon Gardeners' Soc. meets.
15	Th	Ipswich Gardeners' Assn. meets.
16	F	Assn. of Economic Biologists meet; Moon, last quarter, 0.3 a.m.
17	S	Sun rises, 8 hrs. 2 mins.
18	**S**	*4th Sunday in Advent.*
19	M	Sun sets, 3 hrs. 50 mins.
20	Tu	
21	W	Sheffield Chrys. Soc. Smoking Concert; Roy. Gardeners' Orphan Fund meets.
22	Th	Winter Solstice.
23	F	
24	S	New moon, 4.13 a.m.
25	**S**	*Christmas Day.*
26	M	*Boxing Day. Bank Holiday.*
27	Tu	Sun rises, 8 hrs. 7 mins.
28	W	Sun sets, 3 hrs. 55 mins.
29	Th	Paisley Florists' Soc. meets.
30	F	
31	S	Moon, first quarter, 11.22 a.m.

THE
Gardeners' Chronicle

No. 2089.—SATURDAY, JANUARY 8, 1927.

CONTENTS.

Alpine garden—
  Saxifraga florulenta 28
  Sedum spathulifolium 28
Apples, biennial cropping of 37
Books, notices of—
  Potato Varieties ... 21
Bracken, disease of the 22
Chalmers, Mr. A. ... 22
Cherry, Sargent's ... 31
Chrysanthemums in America 28
Cordyline australis fruiting in Scotland 38
Covent Garden in 1827 22
Federation Horticole Professionnelle Internationale ... 23
Flatford Mill 22
Fruit register—
  Apple Hoary Morning 37
"Gardeners' Chronicle" seventy - five years ago 23
Genetic Congress in Berlin 22
Green manuring ... 30
Hardy flower border—
  Two tall Rudbeckias 28
Indoor plants—
  Bouvardias for winter decoration ... 27
Insect pests, recent work in France on the parasitic control of 34
London Daffodil Show 21
Mesembryanthemum 31
Nitrogen fixation and our food supplies ... 33
Obituary—
  Coomber, Thos. ... 39
  Hillier, Edwin ... 39
  McLean 40
  Plumeré, Louis ... 40
  Smith, Matilda ... 40
Orchid notes and gleanings—
  Scale insects ... 26
Orchids, useful winter-flowering ... 26
Peas, preserved ... 22
Plants, hardiness in ... 33
Plants new or noteworthy—
  Primula Parryi ... 27
Potato varieties ... 21
Selsdon Woods ... 22
Societies—
  Horticultural Club ... 21
  Royal Scottish Arboricultural ... 39
Sugar Beet, the culture and manuring of 23
Trees and shrubs—
  Azalea Glory of Littleworth ... 29
  Cistus ladaniferus... 29
  Hybrids of Salix babylonica ... 29
  Jasminum nudiflorum 29
  Prunus subhirtella var. autumnalis ... 29
  Rubus Giraldianus 29
  Spartium junceum... 29
Tulips, a plea for new early 30
Vegetable garden—
  Varieties of vegetables 38
Week's work, the ... 24
Worms, rare garden 36

ILLUSTRATIONS.

Apple Hoary Morning 37
Azalea × Glory of Littleworth 29
Cattleya Warscewiczii var. alba... 25
Chalmers, Mr. A., portrait of 22
Cherry, Sargent's, in the mountain forest, Japan ... 31
Chrysanthemum Capt. Cook 23
Conophytum Comptonii 32
Insectarium at Mentone, the 34
Italian collectors of parasites of the European Corn borer, a group of 34
Larvae, a consignment of parasitised 35
Primula Parryi 27
Prunus sachalinensis in Japan 30

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 5, 10 a.m. Bar. 31.0. Temp. 39°. Weather, Raining.

Potato Varieties I.*

EVERYONE interested in the Potato and Potato-growing—whether raisers of new varieties, merchants or growers—has reason to be grateful to Dr. Salaman. For well nigh twenty years he has devoted himself to the study of this important plant. As Chairman of the Synonym and Potato Committees of the National Institute of Economic Botany, he has played a leading part in pruning the over-grown tree of Potato nomenclature and in reducing it to a more tolerably trim state. Thanks, in large measure to him, we no longer need be confused by the numerous varietal aliases which—though still unfortunately with us—are now knowable for what they are. Dr. Salaman has, moreover, played a valuable part in encouraging and practising the application of scientific methods to the raising of new varieties and—perhaps the most conspicuous of all his services—he has pointed out the gravity of the menace of Mosaic diseases to the successful cultivation of the Potato. Dr. Salaman is, therefore, well-equipped for the task which he has set himself, *i.e.*, that of describing the varieties of the plant, showing what are the powers which preside over the origination of new varieties, and indicating what are the behaviour and destiny of these varieties. The author has done wisely in not attempting to deal with the Potato in all its aspects, for by limiting the scope of his book he has been able to concentrate upon essential problems. Of these problems the most important of all is the precise and clear diagnosis of existing varieties. For although it is true that our seedsmen take an infinity of pains to keep their stocks and the "seed" which they distribute free from rogues, yet the fact remains that not all stocks grown in our fields are pure. Yet upon the consistent trueness to type of Potato stocks the success of the crop in no small measure depends. Those who take an interest in origins will be specially grateful to the author, to Messrs. Sutton and Sons, and to Mr. Lasham, the Potato expert of Messrs. Sutton's, for compiling and publishing the parentage and the names of producers and raisers of most of the varieties described in this book. The work begins by a clear definition of the meaning of the word variety, and then proceeds to show that the Potato, as introduced into Europe in the latter half of the sixteenth century, consisted of two varieties with characteristics similar to those in cultivation at the present time, and quite different from those of known, wild, tuber-bearing Solanums. One—that figured by Clusius, was a deep red variety, and the other—that described and figured in Gerarde's *Herbal* (1597), is a white-skinned variety. They were, however, inferior in shape to existing Potatos. Both the one and the other were irregular, deep-eyed and disfigured by outgrowths, and it was not until the nineteenth century that varieties were produced of more symmetrical contour. It is fortunate for the subsequent history of the Potato that neither of the two original varieties was pure bred. Evidence exists which shows that Clusius' Potato was a hybrid with respect to flower colour, and probably also with respect to colour of tuber. Breeding began mostly in an indiscriminate fashion in the eighteenth century, at which period Potatos seeded freely and varieties soon became extremely numerous. But Nature intervened somewhat tardily, and in her usual enigmatical fashion. In 1845 and the succeeding year Late Blight (Phytophthora infestans) devastated Potato crops. Many varieties proved devoid of powers of resistance, and many persons set about the task of discovering varieties which offered some measure of resistance to the disease. Chief among these early investigators was William Paterson, of Dundee (1811-1870). His theories were all wrong, his methods were crude, but, nevertheless, he delivered the goods in the form of numerous, fine, new varieties. According to Dr. Salaman, the "blood" of one of his varieties, Paterson's Victoria (1856), produced by raising seed from self-set berries on kinds collected from the ends of the earth, runs in most, or all, present varieties of outstanding merit. Magnum Bonum, a variety introduced by Messrs. Sutton in 1876, and Champion, displayed for a long time striking resistance to blight, but their power of resistance was not permanent and now, having played their part, they no longer appear on the stage. This period may be said to close with the production of two of the finest varieties ever raised, Scottish Triumph, that is Up-to-Date, introduced by A. Findlay, and Sutton's Abundance. In recent times new problems have arisen—how to breed varieties resistant to Wart disease, and more recently, how to produce varieties immune to Mosaic disease. In the attempts to solve them, science is lending powerful aid, and is showing why the solution is proving so difficult, but neither the scientific breeder, nor the hawk-eyed breeder who works on non-scientific lines, has yet succeeded in evolving a completely successful solution. That is for the future; nor having regard to what has been done in the past need we be unduly pessimistic as to ultimate success. One of the most notable advances that has been made recently consists in the new conception of the degeneration of varieties. According to the older view, every variety was predestined to degeneracy. It was betrayed by what was false within! Science now rejects this view completely. Degeneration is the outcome of disease, and the disease which step by step saps the virtue of a variety is of extraneous origin. From a practical and immediate point of view, however, it makes no great difference which view be adopted, for the fact remains that on the average a variety "runs out" in the course of a quarter-of-a-century. There are exceptions. Myatt's Ashleaf Kidney is said to be one-hundred-and-fifty years old. Magnum Bonum, although it only lasted thirty years in this country, is at the present time, and with a varietal age of fifty, still one of the most popular varieties in Sweden. We have lingered so long over these fascinating early pages that there is now neither time nor space to finish our review. We propose therefore, to complete our task in a subsequent issue. Before concluding this first instalment, it is important to point out that the practice of saving immature tubers for seed has the sanction of both experience and of scientific observation The reason for the superiority of immature seed lies in the fact that the young tuber is less likely to have become infected with virus disease, which may be, and often is, already present in the older parts of the plant.

London Daffodil Show.—The Schedule of Classes for the London Daffodil Show, to be held at the Royal Horticultural Hall, Vincent Square, Westminster, on April 12 and 13, has been issued, and copies may be obtained on application to the Secretary of the R.H.S. Eighty-three classes are provided, and these are grouped in seven sections, viz., Open classes (20), New Varieties, open classes (9); Market Classes (8); Single Blooms, open classes (20); Amateurs only, varieties in commerce (9); Novices only (9); Amateurs' Collections (1); and Decorative Classes (7). Cash and Medals are offered as prizes, but while the R.H.S. offers the medals, Messrs. E. A. Bowles, P. R. Barr, and C. H. Curtis are responsible for the cash awards. The Market Classes have been extended, but we consider that to "deliver the boxes of flowers tied, labelled and addressed to the Secretary of the Royal Horticultural Society, Vincent Square, Westminster, S.W.1, not later than the evening before the show" is not a fair test for classes for boxes of Daffodils "as packed for market." In our opinion, the boxes of flowers should submit to a journey by rail before being judged.

Horticultural Club.—The Horticultural Club has arranged a syllabus of Lectures for the Winter-Spring session, 1927, and on each occasion a dinner will precede the lecture:—January 11, Mr. W. Cuthbertson, on "Some Horticultural and other Notes Gleaned on a World Tour"; February 8, Mr. Herbert Cowley, on "A Vagabond in Majorca," illustrated by lantern slides; March 8 (annual meeting), Mr. F. J. Chittenden, on "Some American Impressions"; April 5, Mr. W. B. Cranfield, on

---

* *Potato Varieties I.*, by Redcliffe N. Salaman, M.D., Cambridge University Press. Price 25/- net.

British Ferns and their Varieties," illustrated by lantern slides; and May 10, Mr. E. A. Bowles, on "Botany, History and Philology of the Cabbage," illustrated by lantern slides. Non-members may obtain tickets, price 10s. 6d., for each dinner and lecture, from the Hon. Secretary, Mr. Geo. F. Tinley, 855, London Road, Westcliff-on-Sea, Essex.

British Florists' Federation.—The tenth annual general meeting of members of the British Florists' Federation will be held at the Connaught Rooms, Great Queen Street, London, W.C., on Friday, January 21, 1927, at 3.30 p.m. The general business will be followed by a discussion on "Gluts of Flowers and How to Prevent Them." The Eighth Annual Dinner will be held at The Connaught Rooms at 6.15 p.m., on the same day.

Buddleia Forrestii and B. Fallowiana.—Mr. R. C. Notcutt, Woodbridge, writes: "I was very glad to see your note on page 502 of *The Gardeners' Chronicle*, December 25, 1926, regarding Buddleia Forrestii and B. Fallowiana. There has evidently been a good deal of confusion between these two species, and what is known in nurseries as B. Forrestii seems to be nothing more than a good mauve form of B. Fallowiana. It appears, however, there are many variations in the type generally known as B. Fallowiana, several being of a weaker habit to that which is sold under the name of B. Forrestii. The true B. Forrestii, as grown at the Royal Botanic Garden, Edinburgh, is a totally different plant, as Mr. Marquand, of Kew, rightly states, and it is doubtful, from a garden point of view, whether it will become such an attractive plant. In commerce, it is very desirable to get these plants under their correct name, as so much confusion is otherwise caused." We hope to publish further information on this interesting subject in an early issue.

Flatford Mill and Willy Lott's Cottage.—Mr. T. R. Parkinson, of Ipswich, has presented these old-world features of English landscape, made famous by the paintings of John Constable, to the nation. Both the mill and the cottage, which are situated about ten miles from Ipswich, and Colchester, and three miles from Manningtree, appear in several of Constable's most famous paintings. The water mill was inherited by Constable's father, from an uncle. Willy Lott's Cottage, which is named after a farmer who was born in the house and lived to be considerably over eighty years of age, was painted by Constable on very many occasions, and is seen on the left in the picture of "The Haywain," one of his masterpieces. Mr. Parkinson has offered to restore the cottage at his own expense so soon as possible. In 1924 a proposal was put forward to acquire the buildings in connection with a scheme for a school of landscape study; Mr. Parkinson is willing to consider any practical suggestions that may be made to further the progress of landscape painting in this country.

Flora of the Grampian Mountains, Victoria, Australia.—According to Mr. E. Ashby—whose "Notes" were read, in his absence, by Dr. A. B. Rendle, at the recent meeting of the Linnean Society—the Grampian Mountain range, in Western Victoria, covers an area of about sixty by thirty miles; the rocks are sandstone, with quartzite and instrusive rock in a few places. It forms an ecological islet rising abruptly from hundreds of miles of undulating plains, and is a meeting place of the east and west as regards its flora. Fifteen species are endemic, including four species of the Leguminous genus Pultenaea; Trymalium Daltonii, a Rhamnaceous species with an Ericoid habit; Calythrix Sullivanii, a striking Myrtaceous species; Eucalyptus alpina, a small tree growing at two thousand feet altitude; Olearia speciosa (Compositae); Leucopogon thymifolius (Epacridaceae); and single species of the genera Hibbertia, Bauera (Saxifragaceae), Stylidium, Grevillea and Prostanthera (Labiatae); also a terrestrial Orchid, Caladenia iridescens, which flourishes high up in the barren stone mountain soil. Dr. Rendle referred to papers in the *Victorian Naturalist*, by Mr. J. W. Audas, F.L.S., of the National Herbarium, Melbourne, descriptive of the scenery and plant-life in these mountains.

Mr. Alexander Chalmers.—While his business interests are centred in Edinburgh, Mr. Alexander Chalmers is one of the best-known seedsmen in the three countries, for he has travelled extensively, and always makes a point of attending the R.H.S. Spring Show, at Chelsea. His early days were spent in the establishment of Messrs. D. and W. Croll, at Dundee, where he remained over eight years. Then he took up a more responsible position with Messrs. Ireland and Thomson, in Edinburgh. Eleven years later the firm was dissolved, and Mr. Chalmers went with Mr. D. W. Thomson as manager. It was at about this time that he began to be known to his many friends as "The Doctor." This honorary degree is in the nature of a tribute to his extensive knowledge of all that appertains to the seed and nursery trade, for Mr. Chalmers has done more than make the most of his opportunities—he has made opportunities; hence his success in life. Twenty years ago, Mr. Chalmers joined Mr. James C. Stewart as a partner in the well-known firm of Messrs. Stewart and Co., of Edinburgh, and, in spite of two most serious surgical operations recently, which would have overtaxed the average man, still works hard and retains the optimism and good nature which has made him so many friends and renders him an entertaining companion. Such a man could not be self-centred, and his natural sympathies for his fellows finds one outlet in the Royal Gardeners' Orphan Fund. In his capacity of Hon. Local Secretary for the Edinburgh district, Mr. Chalmers has proved a friend to many who have been so unfortunate as to be left widowed, with young children, and a god-father to the orphans, for, besides helping them to receive the benefits of the Fund, he assists them in other directions. For many years he has also had an active connection with the Scottish Horticultural Association, and the Royal Caledonian Society, of which he is a Vice-President.

MR. A. CHALMERS.

Selsdon Woods.—Acting in conjunction with the Commons and Footpaths Preservation Society, a local committee of the inhabitants of Selsdon—about three miles from Croydon, Surrey—has agreed to purchase forty-seven acres of woodland at a cost of £95 per acre. During the past year an area of one hundred-and-ten acres was acquired, consequently Selsdon Woods, with its wild flora and fauna, will be preserved in a natural condition for all time. So soon as the purchase of the new area has been completed, greater London will possess in Selsdon Woods one of the finest natural reserves yet secured. We understand that £2,500 has been subscribed towards the £6,000 needed, but several local residents have agreed to lend the money necessary to complete the purchase of this latest acquisition.

Covent Garden in 1827.—The following paragraph on the condition of Covent Garden Market and its vicinity was published in the *Times* for January 5, 1827, and reprinted in last Wednesday's edition: "A meeting of the inhabitants of the parishes of St. Paul, Covent Garden, and St. Dunstan's, Fleet Street, was held at the School Rooms, Charles Street, Covent Garden, on Wednesday, for the purpose of addressing some resolutions to clear the streets of the nuisance caused by pickpockets and groups of women, who latterly have thronged the vicinage of the theatres, committing every description of depradation and insult. The meeting, which was respectably attended, was convened by a circular handed round among the inhabitants, explaining the absolute necessity there appears for the adoption of some means to remedy the apparently defective state of the Street Police, to which the existence of the nuisance was naturally attributable."

Genetic Congress in Berlin.—The International Committee elected to arrange the forthcoming Genetic Congress has unanimously decided to accept the invitation of the German Genetic Society to hold the next (fifth) Congress in Berlin; it will take place there from September 11 to 18, 1927. It will have a very international character, three languages (English, French and German) being employed, and at the first sitting other languages can, if desired, be introduced. Besides the reading of papers and a certain number of demonstrations, there will be receptions and fêtes, and on the last day a visit to Potsdam, concluding with a final banquet.

National Rose Society.—The annual general meeting of members of the National Rose Society will be held at Caxton Hall, Westminster, on Tuesday, January 18, at 2.30 p.m., for the purpose of receiving the Annual Report of the Council and the Statement of Accounts for 1926, and the election of Officers and Members of Council for 1927. Tea and light refreshments will be provided after the meeting.

Preserved Peas.—The consumption of green Peas, preserved in bottles or cans, has increased enormously in recent years, but the preservers are now faced with the difficulty of retaining the green colour of the Peas, owing to the new regulations against the use of preservatives in food, which came into operation on New Year's Day. The Peas in the past have been treated with copper sulphate to preserve the green colouring, but the use of this chemical is no longer permissible. However, Mr. A. Appleyard, Director of the Research Station of the Ministry of Agriculture at Campden, Gloucestershire, states that a natural process of preservation has been evolved which retains the chlorophyll. The canning industry in this country, which meets strong competition with French, Italian and American products, will find the new process of great commercial value.

Disease of the Bracken.—The announcement of the discovery of a disease of Bracken on the farm of Knoweside, Maybole, made at a recent meeting of the Scottish Chamber of Agriculture (see p. 2) has created widespread interest among farmers and scientists, and the *Glasgow Herald*, of Dec. 29, last, published particulars of the research work that is in progress to test the possibility of cultivating the disease as a means of clearing hillsides of the pest. These investigations have been conducted by Mrs. N. A. Alcock, Mycologist of the Board of Agriculture, who has found that the disease is of a fungous character, and that it is present at all stages in the affected plants. The most striking characteristic of affected Bracken is its stunted size. In the affected area the plant is rather sparse and the fronds, which have the appearance of being frosted, grow from eighteen inches to twenty-four inches in height. In the area surrounding the diseased patch the Bracken grows to its normal height. The investigator found that the tops of the diseased specimens were dead and that one or more fronds had developed poorly. In many cases the plants had been killed before the fronds uncurled. Another feature was a kind of ring, the centre of which was formed by plants that were killed by disease, and the fringe of plants partially attacked. There is ground for believing that the infection started in the soft, curled fronds, or made a beginning between the pinnae and the main rachis. In other cases the indications were that it had started at the edge of a young frond where water might have collected. In others again, the evidence was only at the tip. Meantime the fungus is being closely studied, and on several areas on the east coast and on the Pentland Hills, Bracken has been inoculated and is under close observation. Very little has been learned scientifically as yet about the disease, but the important fact meantime is that the affected plants have been definitely declared to be diseased, and that this is the first time the disease has been known to attack Bracken. Having admitted so much, the experts counsel caution as to the possibilities of usefulness which may be developed as they are by no means assured that a biological method of controlling Bracken has been discovered. The practically world-wide distribution of the plant which is found from the Cretaceous period onwards, demonstrates its power of resistance and its vegetative virility, indifference to heat and cold, drought and moisture. This is the first known instance in which Bracken has been known to succumb to any disease. It shares with other plants of ancient descent, like Mosses, Ferns and Club Mosses, a high resistance, and an almost clean bill of health. Rarely is it attacked by a parasitic rust, which, even when present, does not do enough harm to be important. Occasionally some stem fungi are found upon the Bracken, and a few negligible spot fungi on the fronds.

Federation Horticole Professionnelle Internationale.—The International Commercial Horticultural Conference will be held this year at Geneva, from June 20 to June 24. The programme, drawn up by M. Vachoux, President of the Swiss Horticultural Association; M. Rochaix, M. Stahel and M. Peter, is as follows: Monday, June 20, 9 a.m., opening of the Conference; 12.30 p.m., banquet offered by the Council of State; 3 p.m., continuation of Conference; 6 p.m., Reception by the Administrative Council of Geneva; 8.30 p.m., performance at the theatre (probable). Tuesday, June 21, 9 a.m., Continuation and conclusion of Conference; 12.30 p.m., Banquet offered by the Association of Swiss Horticulturists; 3 p.m., visit by car to the Horticultural School, reception and visit to the Park Rothschild, the Botanical Garden and the International Bureau of Work; evening free. Wednesday, June 22, excursion on the Lake of Geneva, remaining at Montreaux for the night. Thursday, June 23, ascension of the Rochers de Naye, return to Montreaux and departure for the Bernese Oberland and Berne, remaining at Berne for the night. Friday, June 24, visit to Berne and its environs and reception by the Bernese horticulturists, which ends the programme. The Floral Fete of Geneva, which will take place on Saturday, June 26, will be included in the programme, in case some of the delegates wish to see it.

The Culture and Manuring of Sugar Beet.—A conference on the subject of the culture and manuring of Sugar Beet has been arranged in conjunction with the British Sugar Beet Society, and will be held at the Rothamsted Experimental Station, on Wednesday, January 19, at 11.30 a.m. The chair will be taken by The Right Hon. Lord Clinton, D.L., J.P., and the speakers and subjects will include, among others: M. J. M. Van Bommel Van Vloten, Sugar Beet expert to the Netherland Sugar Industry, "Continental Experience with the Growth of Sugar Beet"; Mr. T. G. Fowler, Commercial Manager, Cantley Beet Sugar Factory, "What the Factory Wants and How the Farmer can Supply it."; Mr. I. J. Schapringer, "Effect of Climate on the Cultivation of Sugar Beet; Mr. R. N. Dowling, County Agricultural Organiser, Nottinghamshire, "Experiments with Sugar Beet in the Midland Counties"; Mr. C. J. Clarke, Chiselborough, "Practical Experience in South-West England"; and Mr. H. J. Page and Mr. C. Heigham, "Manurial Experiments with Sugar Beet at Rothamsted and Woburn." Those who can make it convenient to attend and take part in the discussion should notify the Secretary, Rothamsted Experimental Station, Harpenden, so soon as possible. The Railway Hotel and the Old Cock Inn, Harpenden, will be prepared to provide luncheon, price 3s.

Appointments for the Ensuing Week.—MONDAY, JANUARY 10: United Horticultural Benefit and Provident Society's meeting; Guildford and District Gardeners' Association's meeting; National Chrysanthemum Society's Floral Committee meeting. TUESDAY, JANUARY 11; Royal Horticultural Society's Committees meet; Jersey Gardeners' Society's meeting; Wimbledon and District Gardeners' Society's meeting. WEDNESDAY, JANUARY 12: Burton on-Trent and Shobnall Chrysanthemum Society's annual meeting; Newport (Mon.) Horticultural Society's meeting. FRIDAY, JANUARY 14: Orchid Club meeting; Royal Horticultural Society of Ireland meeting; Buxton and District Chrysanthemum Society's annual meeting.

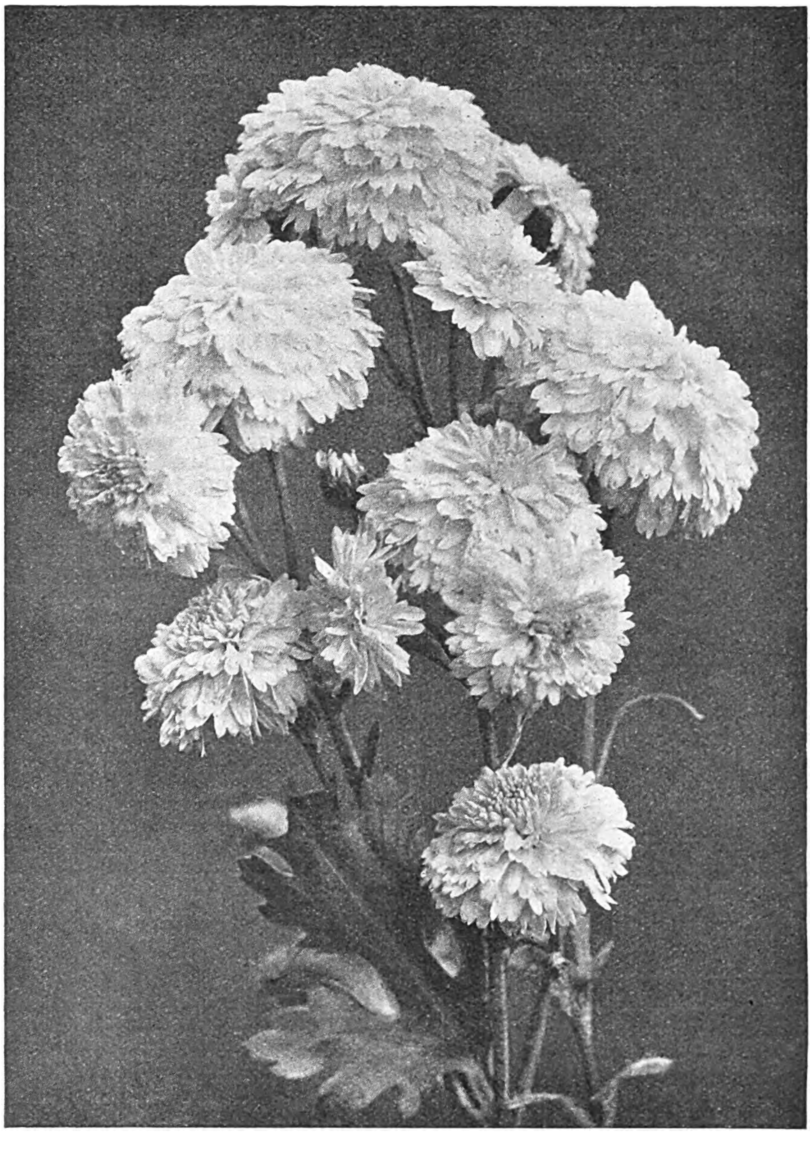


FIG. 14.—CHRYSANTHEMUM (POMPON) CAPT. COOK

(See p. 28).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Botanical Gardens.*—Until I saw the Glasnevin and Belfast Gardens, I own I had a very low notion of the value to botany or horticulture of botanical gardens, either at home or abroad; no disparagement to Kew, where the collections, both indoors and out, are extensive and well-kept. I, however, lately read a proposal of Professor Henslow in some newspaper, to form a collection of types of natural objects, specimens, etc., fitting for museums of natural history; now I take it that, if this plan were adopted in regard to botanical gardens, with much more completeness and care than is shown at present, even in the best of this kind of gardens, it would render them far more useful than they now are. That is, if attention was first directed to the cultivation of types, say, of each genus, and of all plants especially illustrative of particular facts in vegetable economy, and as far as climate and cultivation would allow, systematically arranged, the botanical student would find much more to induce him to visit such collections than he has at present. Of course, I should not confine the collection to such types; there would be many other objects illustrating structure and vegetable physiology, which should find their place in a garden devoted to living specimens of plants; and there should be attached to it a museum similar to that at Paris, and since commenced at Kew, and also a herbarium. I remember a few years ago calling your attention to the subject of botanical gardens, and you then stated your intention of making some observations on the subject. *Dodman, Gard. Chron., January* 10, 1852.

Publications Received.—Nut Tree Propagation, by C. A. Reed. *Farmer's Bulletin*, No. 1501, U.S. Department of Agriculture, Washington, D.C. *Naturbilder Aus Südwest-China*, by Dr. Heinrich Handel-Mazzetti. Osterreichischer Bundesverlag, Wien, Vienna. Price RM. 24.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Ventilation.—Owing to the amount of fire-heat requisite at this season to maintain the necessary warmth, especially in the warmer divisions, it is advisable to admit fresh air daily to prevent a stuffy atmosphere. Discretion must be used in admitting air every day, as a dry, parched, stagnant atmosphere is detrimental to plants at any time. The observant cultivator will soon detect the difference between a badly ventilated and a judiciously ventilated house, not only by his own physical experience, but in the health and vigour of his plants. Houses vary considerably in their requirements in this respect, it being much more difficult in some than in others to maintain that proper balance of heat, air and moisture which is necessary to successful cultivation. Orchids need fresh air but must not be exposed to cold draughts, especially those that have tender foliage, as this is easily chilled and harmed.

Watering.—The application of water to the roots at this particular season needs very careful attention. Many Orchids are at rest, and these only require sufficient moisture to prevent shrivelling; others will be growing and require water whenever they become dry. Recognition of this difference is one of the great secrets of successful plant cultivation. A safe rule at this season is to keep the plants somewhat on the dry side until growth or root-action commences, trusting principally to the humidity in the atmosphere to bring them safely through the winter.

Potting.—It will probably be found that very few plants are in a desirable condition for repotting, but any that are at a suitable stage for this operation may be attended to at any time provided watering is done carefully until the new roots are re-established.

Increase by Division.—Where it is desired to increase the stock of any variety by division, this is best done at the time of repotting, as it can then be seen how to carry out the operation to the best advantage. Every root should be preserved on a divided plant. The divided portions will require careful watering until they start to grow, and are best placed in the smallest receptacles that will hold them.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Hot-beds.—If hot-beds for the forcing of early vegetables and salads have not already been made, equal parts of stable manure and leaves should be well mixed together, and thrown into a heap to ferment. Turn the heap after an interval of about ten days to allow the rank gases to escape, and so soon as fermenting materials are in a suitable condition the beds should be formed. Mark out the site of the beds, allowing about eighteen inches more space than the frame will occupy to permit of fresh fermenting materials being added when the heat begins to decline. The bed should be about one foot higher at the back than in the front. Tread or beat the manure firmly, place the frames thereon, and add soil to a depth of about six inches to eight inches. The soil should be light in texture and fairly rich, such as a mixture of old potting soil, leaf-mould, loam, a little old Mushroom-bed manure, burnt refuse, and a dash of soot. The materials should be passed through a sieve to remove the roughest portions. Place a testing peg or thermometer in the soil and so soon as the temperature is suitable a start may be made with the various crops. Should manure be difficult to procure, a gentle heat may be obtained by the use of leaves, especially if a good bulk be placed in brick pits. It is surprising how long the gentle warmth generated by fermenting leaves will last.

Carrots, Lettuces and Radishes.—These vegetables should be amongst the first to be sown Choose a good forcing variety of Carrot, such as Golden Ball, Inimitable Forcing, Early Nantes or Paris Forcing. The seeds should be sown thinly in rows made eight inches apart. Select any compact varieties of Lettuce, such as Selected Tom Thumb, Commodore Nutt, Harbinger Forcing and Golden Ball. These small-growing sorts need only about six inches to eight inches between the rows. Thin the seedlings at an early stage, leaving them from two inches to three inches apart, and when they are large enough, take out the alternate plants and use them as salad. Presuming a stock of seedling Lettuces is available from seeds sown earlier in boxes, no better place can be found for them than these warm frames. Keep a close watch for slugs. Radishes may be sown broadcast or in rows, the latter method for preference. Good forcing varieties of the Turnip-rooted section will be found the best for earliest forcing. They have small tops, so that a space of four inches to five inches between the rows will be ample.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Figs in Borders.—Trained Fig trees, established in compartments or cubes of compost should now be ready for starting into growth, by the aid of fermenting material, where this can be done. Later houses, in which the trees are allowed to grow naturally, should be kept dry and cool by the most liberal ventilation, unless the weather is exceptionally cold and frosty, and put in readiness by cleansing the woodwork, etc., also training and top-dressing the trees as may be required.

Peaches.—Where fermenting materials have been used for forcing the earliest pot Peaches, the difficulty has been to keep the temperature at 50° at night and 55° to 60° by day. Ventilation should be afforded every day at the top of the house, according to the state of the weather. Maintain a humid atmosphere by turning a portion of the bed and sprinkling it occasionally with tepid water. Allow the buds to get dry before darkness sets in, and, as the blossoms expand, raise the night temperature to 53° or 55°. Allow the flowers to get perfectly dry by the middle of the day, when a brush or rabbit's tail should be passed over them to distribute the pollen.

Peach Trees in Borders.—The present is a suitable time to close the first houses of permanent trees containing such varieties as Early Rivers, Nectarine, Duke of York and Peregrine Peaches, if not already done, no fire-heat being necessary for the first fortnight. Let the necessary pruning and top-dressing be attended to in the later houses, and where red spider and scale have been prevalent, cleanse the trees with soft soap and Gishurst compound, used according to the directions issued by the makers. In using the brush be careful to draw it upwards to the point of the shoot. The trees will then be in a thorough state of readiness for starting at any early period of the New Year.

Strawberries.—Plants that were placed on a bed of leaves last month will have started to grow, and when the flower spikes are discernible remove them to a shelf close to the roof-glass in a house having a temperature of 50° to 55°. Do not exceed the latter figures until the fruits have set. Keep the plants moderately moist but not wet. Plants for successional cropping should be brought indoors from the open every fortnight. Examine the drainage to see that it is perfect. Every facility should be afforded the grower for syringing to keep down red spider; aphides should be destroyed by light fumigations.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Stafford, Wrotham Park, Barnet, Middlesex.

Red Currants.—These bushes should be pruned and the ground afterwards forked over and put in neat order. If the plants have reached the height required, all the shoots should be spurred back to within a few buds from the main, cordon-like branches. Do not allow the heads to become crowded with shoots; each branch should be sufficiently far apart to allow light and air to circulate freely throughout the bush. If it is intended to increase the stock of particular varieties, save the best of the prunings for cuttings, and also keep a watchful eye on the buds should sparrows and other birds promise to be troublesome.

Raspberry Beds.—The Raspberry needs a deep, fertile soil, moist but not too wet. In preparing the ground for new plantations keep the best soil towards the top and break up the land two feet deep. If the soil is of a poor nature add plenty of rotted manure when trenching it. Heavy land should be lightened with such porous materials as that from the rubbish heap, wood-ash or leaf-mould. In planting in lines make the rows six feet apart and allow six inches between the canes in the rows. Spread the roots out and work plenty of fine soil amongst them, treading the ground rather firmly as the planting is completed. Apply a good mulch of manure a foot beyond the extension of the branches.

Autumn-fruiting Raspberries.—These varieties, like the summer-bearing sorts, require liberal treatment. The ground should be dug deeply and enriched with suitable materials. Plant young, healthy suckers forthwith. The old plants should be cut down almost to the ground level each year, and as the new growths appear remove any that are weak and not required for any particular purpose, so that those left to fruit may grow freely and sturdily. The varieties Lloyd George and November Abundance are good and reliable croppers.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Chrysanthemums.—Where large blooms of Chrysanthemums are desired, such varieties as Majestic, Victory, Mr. G. Drabble, Queen Mary, and the sports of the two latter, should now be rooted and ready for placing in small pots singly. These varieties require a long season of growth to produce the best results, while the propagation of most of the others is best delayed until now. Cuttings that have rooted sufficiently should be placed singly in small sixty-sized pots, after which they should be stood on a shelf near the roof glass in a comparatively cool house to prevent them becoming drawn. The soil for this potting should consist of three parts loam and one part leaf-mould, mixed with a little bone-meal, and sufficient sand and burnt garden refuse to render the compost porous. Cuttings of other Japanese varieties, also single and decorative sorts, may now be inserted in sandy soil and stood in a propagating frame. They will root readily in a temperature of 45° to 50°. It is a mistake to root Chrysanthemums in a high temperature for this causes them to grow weak and spindly. Some growers place one cutting in a small pot, but I see no necessity for this, provided where more than one are inserted they are not allowed to remain in the receptacle until the roots have become entangled. Remove the frame every morning to allow the condensed moisture to escape. After the cuttings have been secured many of the old stools may be dispensed with, retaining only sufficient to ensure plenty of stock, and for the later propagation of cuttings in April to produce small plants for growing in six-inch pots for decorative purposes.

Flowering Shrubs.—In large establishments where groups of plants are required for decoration nothing gives such good results as flowering shrubs, which are very easy to grow and may be had in flower over a long period. They include Wistarias, Lilacs, Ghent and Mollis Azaleas, Laburnums, species of Prunus, and Viburnums. When starting flowering shrubs into growth it is not advisable to bring them from the open and place them in a high temperature, for this would only result in failure. There is no more suitable place in which to force them in the early stages than a fruit house that is being closed. The small amount of heat such houses provide is most suitable for flowering shrubs, and their development may be hastened somewhat when it is noticed that the roots are active and the buds expanding freely, by introducing them to a warm house where they may remain until such time as the flowers are developed. When in bloom, they should be stood in a cooler house, but guard against cold draughts, which would cause them to flag considerably.

THE FLOWER GARDEN.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Verbena venosa.—This plant is easily raised from seeds sown during this month. It should be more generally used for bedding schemes, as it is very charming when associated with grey-foliaged plants, or with pale yellow flowers, such as those of Calceolaria amplexicaulis.

Foliage Plants from Seeds.—A large number of foliage plants may be raised from seeds sown at this time; they are of immense value for associating with flowering plants or for use in sub-tropical bedding. They include such useful and beautiful subjects as Centaurea candidissima, C. gymnocarpa, C. Clementei, Cineraria maritima, all plants valuable for their silvery or grey foliage; Solanum marginatum, S. Balbisii, P. pyracantha and many others that are valuable for large, bold schemes; Eucalyptus Globulus, Ricinus (Castor Oil Plant), Maize in green, variegated and quadri-coloured varieties. Albizzia lophantha, Perilla and ornamental Beets. All these most popular and useful subjects are easily raised from seeds sown during the months of February, January and March.

Lawns.—The repairing of lawns, where necessary, should, if not already done, be proceeded with as weather conditions permit. Playing lawns especially will need attention now in order that they may be in good condition for use when needed. Worn patches should be cut out and returfed with sound material similar to that removed, while small depressions should be made level by rolling the turf back and placing sufficient soil underneath it to bring the surface to the general level. Where large stretches have to be relevelled the turf should be carefully removed in turves twelve inches square, and the correct levels pegged out by means of boning rods or a straight edge and spirit level. After bringing the ground to the required level, the turf should be relayed by a skilled workman. When in proper condition the lawns should be swept and rolled: the sweeping will distribute worm casts, while the roller will consolidate the surface which has been loosened by frost and worms, but neither sweeping nor rolling should be done unless the lawn is dry, or else much damage may result to the grass. In the case of tennis lawns, bowling and putting greens, worms may be eliminated by means of a worm-destroyer, but in the case of general lawns this is not possible, or, indeed, desirable, except on a small scale. Where it is desired to sow new lawns during the spring, no time should be lost in levelling and preparing the ground, so that it may be in good tilth when the time for sowing arrives. Lawns that are in poor condition will benefit by being raked or treated with a brush-harrow, afterwards top-dressing them with fine soil and bone-meal, or thoroughly decayed farmyard manure, raking it over evenly, or using the brush-harrow in the case of large areas.

Garden Paths and Drives.—Any new work and repairing of existing paths should be undertaken when time and weather conditions permit. The work may consist in re-gravelling, correcting faulty drainage, or making good uneven edgings. Even if suitable material is on the spot, path and road making is an expensive operation, but in the end it pays to do the work thoroughly, for with proper attention, well-made paths require little renovation for many years. On sloping ground it is a common mistake to make no provision for the carrying off of storm water, with the result that the material of the paths is being constantly washed down to the lower levels. Much of this trouble may be prevented by fixing suitable gullies and traps for storm water.

Mowing Machines.—If not already done, all machines should be thoroughly overhauled and cleaned in readiness for the coming season, replacing worn or broken parts, with new spare parts from the makers. Any machine that requires repairing should be sent to a suitable establishment where such work can be properly done.

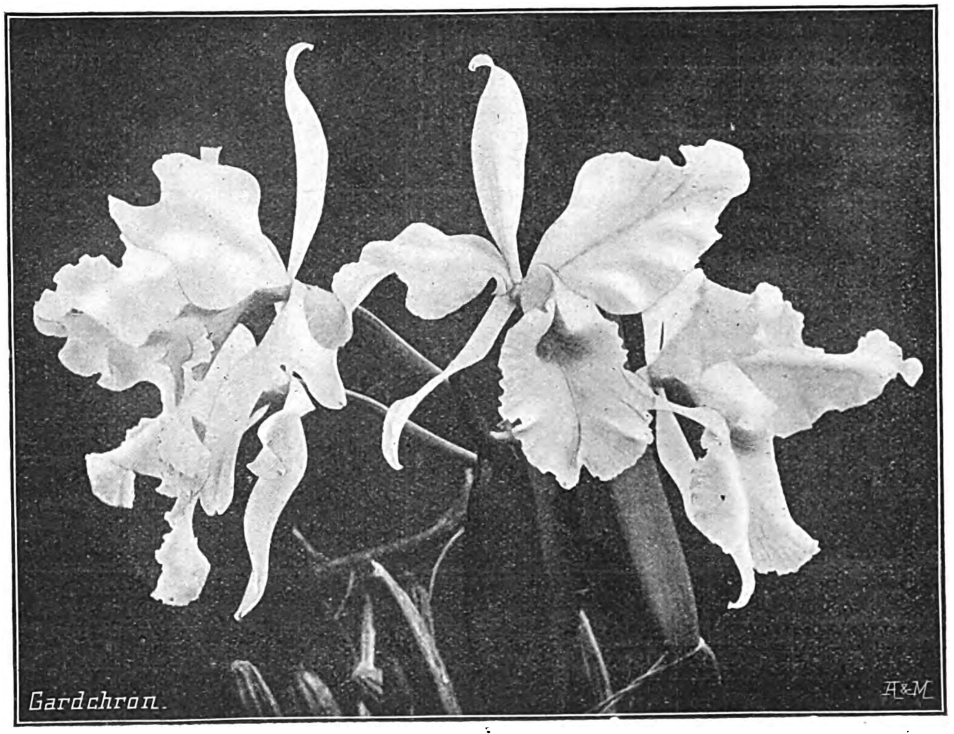


FIG. 15.—CATTLEYA WARSCEWICZII VAR. ALBA.
(see p. 26.)

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Seed-sowing.—Where large Onions are required the seeds should be sown very early in the year in order to ensure as long a season of growth as possible. Sow thinly, and cover the seeds fairly deeply as they have a tendency to work up to the surface, and the resultant growth becomes twisted and recumbent. A moderate temperature is always best for hardy subjects, and little is gained by attempting to force them unduly. So soon as the seedlings appear they should be exposed to the light to prevent them becoming drawn and soft in texture. When the second leaf is well developed prick out the plants singly into other boxes of well prepared soil.

Plant Houses.—The various fruit houses having been cleansed and made ready for another season, they should be left fully ventilated, so far as the temporary occupants permit, until the time comes for closing them. Attention should now be devoted to the cleansing of the plant houses. All foliage plants should be sponged with a soapy solution to rid them of dirt and insect pests; where scale insects are troublesome, a wine-glassful of paraffin to half-a-pound of soft soap, well-beaten and emulsified, should be used in tepid water, and the stems and midribs of the leaves carefully gone over with a blunt stick to loosen these troublesome insects. When all the plants have been cleansed they should be removed to temporary quarters, and the house or stove washed thoroughly, including the walls and stagings, and the whole made sweet and clean before they are returned. If inside painting is necessary, this also should be done while the house is empty, so that when the clean plants are returned they will have sweet quarters.

Hellebores.—These useful winter-flowering plants are making a fair display, and where hand-lights or sashes were placed over them some time ago, the flowers have been protected from the vagaries of the weather, and also from soil splashings by heavy rains. Clumps lifted for forcing should be watered carefully and hardened gradually again before being replanted. When replanting, take the opportunity of using some of the smaller portions of the plants to increase the stock. A serious disease of the foliage attacked our Christmas Roses a few years ago, the leaves being so severely crippled during the growing season as to leave the plants weak and useless. This disease was eventually controlled by spraying the plants with a solution of liver of sulphur at a strength of one ounce in one gallon of water, on two or three occasions throughout the summer.

Drainage.—If any draining, either of lawns or other parts of the garden, is contemplated and necessary, arrangements should be made to have this work done in the near future. It sometimes happens that very old drains become blocked and do not perform the purpose for which they were intended. Where this is the case, it may be sufficient to reopen these old drains, and, after clearing the obstruction, simply relay the old tiles, assuming that they have a clear outlet to a main drain. In cases of new drains, it is necessary to draw up a plan showing the whole scheme, and by means of a tripod and level ascertain the lowest point where all the drains must converge, thus ensuring a sufficient gradient to the branch drain. From this point the latter should be led to the nearest ditch or brook with sufficient fall to keep it working freely; the mouth of this main drain should always be kept clear so that on inspection it may be seen at a glance whether it is working efficiently. Land that has been soured and water-logged for years is soon improved beyond recognition by a good drainage system, and lawns that are like a morass in wet weather are rendered firm and dry.

USEFUL WINTER-FLOWERING ORCHIDS.

THE fortunate possessor of a large collection of Orchids has an available supply of high-class flowers at all times of the year, but the species which flower during the winter months seem to have a double value, and the object of this note is to direct attention to a few of the more easily managed kinds which usually flower during the dull days of winter. Some of these are so extremely beautiful, flower so freely, and are so easy to manage, that each kind should be grown in considerable quantity where accommodation can be found.

CALANTHES.

The deciduous Calanthes are worthy of special mention, for they produce long spikes of showy flowers which remain in beauty for a long period, and they probably rank amongst the most popular Orchids grown. C. Veitchii, C. vestita and their varieties and hybrids, are the most desirable from the decorative point of view, and as the flowers are borne on very long spikes, after the leaves have fallen, they may be grouped with other plants to produce very pleasing effects. The flowers are also amongst the most useful for cutting purposes.

Calanthes succeed admirably in a mixture of turfy loam, Oak leaf-soil, not too decomposed, and dried cow-manure, with a sprinkling of sand or finely-broken, clean crocks. The drainage must be effectual, and as the plants commence to make new growth soon after they go out of flower, repotting should be done before this is far advanced. No water should be given until the roots have penetrated the soil, and then very little until growth is quite active, when liberal quantities and a moist atmosphere will be necessary.

CATTLEYAS.

The magnificent Cattleya labiata, the first Cattleya to flower in this country, produces its flowers rather too early, October and November, to be included in the selection of winter-flowering species, yet its flowers are so acceptable at that dull period that it can hardly be left out. Its large flowers, with rose-coloured petals and crimson lip make C. labiata very valuable as a decorative plant. C. Warscewiczii is also an exceedingly valuable plant and unsurpassed in attractiveness in its season. The variety alba (see Fig. 15), with pure white flowers, is equally useful.

C. Bowringiana is also a popular species which grows and flowers freely. Although the flowers are small compared with those of the labiate section, they are produced eight or ten on a scape, and their rose-purple petals with veins of a deeper tint, and deep purple lip, make them attractive. The plants succeed in a house having an intermediate temperature and they should be given the advantage of a light position near the glass, with sufficient shade in bright weather, during the summer season, to prevent the leaves receiving any injury from the sun. A mixture of Osmunda fibre and Sphagnum-moss suits them admirably and the pots should be filled to at least a third of their depth with rather large crocks.

Cattleyas must not be overwatered at any period of their growth ; when growing freely they require moderately liberal supplies, but when at rest only just sufficient water should be given to keep the pseudo-bulbs from shrivelling.

COELOGYNES.

Several species of this genus flower during the winter months, but none can compare with the lovely C. cristata, one of the most beautiful of all East Indian Orchids, and one of the easiest to manage in an ordinary plant house. The flowers are large, graceful in form, and of the purest white, with orange-yellow markings on the lip, and they are produced profusely in long, pendent racemes.

Baskets or shallow pans are the best receptacles in which to grow this species, and as it requires an abundance of moisture at the roots during the growing season, they should be half-filled with crocks. C. cristata grows freely in a mixture of fibre and Sphagnum-moss, with a plentiful addition of small crocks and charcoal nodules. As the pseudo-bulbs lay almost flat upon the material, this should be raised in the middle into a convex outline. During the flowering period cool treatment and a comparatively dry atmosphere will be found most congenial to the plants, and under such conditions the flowers last quite a long time.

CYPRIPEDIUMS.

There are many useful species of Cypripediums for winter flowering, but for the easy production of flowers in quantity there is nothing to beat the old C. insigne and its many varieties. This may be grown very successfully in an ordinary greenhouse, but the progress will be more rapid and the flowers more freely produced if the plants are subjected to a higher temperature during the time the young growths are being made. C. villosum is also a handsome species of robust habit and strong constitution, but requires a stove temperature during the season of growth.

A compost of two-thirds fibrous peat and one-third Sphagnum-moss suits these plants well and, when potting, ample drainage should be given. They require liberal supplies of water when in full growth, and as they have no pseudo-bulbs to support them the compost should not be allowed to become dust-dry when they are at rest.

DENDROBIUMS.

Probably the two best species to cultivate for winter-flowering are D. nobile and D. Linawianum, both of which require the warmer end of a stove. D. nobile is one of the oldest and best-known, very easily grown, and, moreover, one of the most beautiful and floriferous species, in cultivation. Some growers may object to its inclusion as a winter-flowering species as its natural season is spring, but it is an accommodating plant, and with special management may be had in flower in February. To effect this, the plants should be placed in strong heat early in the year and encouraged to make their growth early. So soon as this is completed they should be removed to a cooler, airy position, exposed to the light and sun and kept comparatively dry at the roots to compel early rest. By placing these plants in a brisk temperature early in the winter they will start away freely and soon come into flower. The following season they will start into growth naturally much sooner than usual, and every encouragement should be given to induce them to complete it quickly. By dividing the plants into several batches it is possible to have flowers over a very considerable period.

The essential points in the cultivation of Dendrobiums are a light material, such as Sphagnum-moss and fibre for the roots to run in, a brisk temperature combined with a humid atmosphere, and liberal supplies of water when in full growth, also a light and airy position when the season's growth is in process of maturation, combined with dryness both at the roots and in the atmosphere. They should not be overpotted as they flower more freely when they have not too much fresh material about them.

EPIDENDRUMS.

Most of the members of this genus produce their flowers in spring and summer, but E. Lindleyanum flowers in late autumn, and E. Skinneri major is a valuable winter-flowering kind which merits attention because of its ease of culture and free-flowering qualities. It thrives in an intermediate temperature, suspended near the roof-glass, and should be grown on blocks of wood or cork. The plants require an abundance of moisture during the summer season and sufficient to preserve the pseudo-bulbs plump during the winter. They should not be exposed freely to the sun until the month of August, when the power of its rays has declined.

ONCIDIUMS.

There are several Oncidiums which are valuable winter-flowering plants, and amongst those which can be most highly recommended are O. flexuosum, with large, branching spikes of bright yellow, showy flowers ; O. leucochilum, an old favourite of good habit, very strong in growth, and producing immense quantities of yellow and brown flowers when well grown: O. ornithorhynchum, producing graceful, arched scapes of delicate, rose-purple flowers, delightfully scented ; and O. tigrinum, a most beautiful free-flowering species. This is a most useful plant, its blossoms developing in late autumn and winter, lasting for several weeks in perfection and filling the house with a delightful Violet-like fragrance.

These Oncidiums thrive in a cool house and may be grown in pots or baskets ; they should be kept near the glass at all times. They prefer an open compost, and when the plants are growing freely supplies of water must be liberal, but it is desirable to keep them rather dry at the roots when at rest.

LAELIAS.

This genus provides two extremely useful winter-flowering plants in L. anceps and L. autumnalis. The latter, with its varieties, ranks with the most select of Laelias, grows and flowers freely in the Mexican house, and is of exceptional value because its fragrant and lasting flowers expand in October and November. L. anceps is a vigorous-growing species, and flowers freely in December and January. It succeeds well in baskets, and large specimens of it are remarkably handsome, frequently producing so many as twenty scapes of its fragrant, richly-hued flowers.

LYCASTE SKINNERI.

This splendid Orchid is of especial value because of the ease with which it may be grown in a cool house. It succeeds satisfactorily in a temperature of about 55° during the winter season. The plants should be potted in a compost of fibrous peat and chopped Sphagnum-moss, and receive abundance of water during the growing season, but only a moderate amount during the winter. As with all moisture loving subjects, drainage must be perfect.

The scapes, which spring from the base of the pseudo-bulb, are single-flowered, but they are freely produced, and the flowers are large and strikingly handsome. When fully expanded great care must be exercised to prevent the flowers being wetted or they soon become spotted and unsightly.

VANDA COERULEA.

This, the last subject to which I intend to allude, is a very distinct Orchid, and from a decorative point of view, one of the most valuable, while in colour, as well as in wealth of flowers, it is supreme amongst Vandas. To cultivate it successfully it should be kept in an intermediate house or in the cooler end of an ordinary stove, as too much heat is decidedly injurious to it. It thrives in Sphagnum-moss with which a plentiful proportion of clean potsherds and charcoal nodules is mixed, and should be grown in baskets suspended from the roof, where it may have abundance of light and a free circulation of air. It should be shaded only during the hottest sunshine. The flowers are of a beautiful pale, lavender blue, and are borne on racemes produced from the axils of the leaves. Generally, only two racemes appear in one year, but occasionally, under good cultivation, three, four, or even five racemes may be produced, and when the flowers are all expanded it is a gorgeous sight not easily forgotten. *A. P. C.*

ORCHID NOTES AND GLEANINGS.

SCALE INSECTS.

ONE of the worst pests of Orchids is a soft, white scale that conceals itself under the outer sheaths of the pseudo-bulbs of Cattleyas and similar plants.

The destruction of scale insects may be accomplished with the aid of one of the many safe insecticides sold for the purpose, mixed according to the instructions given by the makers, with tepid, soft water. Sponge the leaves and pseudo-bulbs, and where the pests are very numerous, the outer sheath may be opened and the scales removed with a pointed stick. Where a number of plants require cleansing, time will be economised by preparing sufficient of the insecticide in a tub or other convenient utensil, to immerse each plant head downwards in the specific, well wetting the leaves and pseudobulbs. After withdrawing the plant, hold it over the tub to drain for a short time, and place it on its side; following this the plants should be thoroughly examined and cleansed.

Take the opportunity to wash the pots and the material on the stages, also remove all dirt from the glass, roof-rafters and other woodwork of the house. *C.*

INDOOR PLANTS.

BOUVARDIAS FOR WINTER DECORATION.

All who have to provide a large supply of flowers during the winter should grow these splendid plants, for few other subjects give such a wealth of blossom during the short, dull days, when well grown. But Bouvardias, to be worth house room and a credit to those who grow them, must be well cultivated, and cultivation means potting them in a generous compost, hastening their development in a growing temperature during the early part of the season, and then placing them for the summer under the most favourable conditions for making vigorous growths early enough in the season for them to become thoroughly ripened by the end of the summer.

For the production of good plants, a start should be made in January, or so soon as cuttings are obtainable. These should be struck in the propagating case, and when well-rooted placed singly in three-inch pots. They should be grown in an intermediate house or warm corner of the greenhouse, giving them full exposure to the light. So soon as well established in these pots they should be shifted into five-inch pots, the object being to keep them growing vigorously until all danger of frost is gone, when they may be planted outside. Herein lies the most important point in the culture of these plants, for when kept starved in small pots they make hardly any progress until they are planted out, and what little growth is made is very weak. It is not, however, of so much importance to shift them for the sake of the actual growth made in the pots, as it is to prepare them for growing away in the most vigorous manner when turned out into the border. Stunted plants require considerable time to recover from the effects of the starving process to which they have been subjected, and our summers are so short for the growth of these plants that every precaution must be taken against losing a single day.

The preparation of the compost is a matter requiring some judgment. It should be moderately rich and rather light in texture; a mixture of three parts fibrous loam, two parts old hot-bed manure, and one part Oak leaf-soil with a liberal sprinkling of coarse sand suits them admirably, while for the autumn potting a little bone meal may be added.

Early in June, Bouvardias may be planted out on a warm, sunny border, which has been well prepared, at a distance of about fifteen inches apart. A liberal supply of water on a few occasions will be required until the plants have become well established in their new quarters, and occasional waterings throughout the summer in dry weather are necessary. To ensure the formation of bushy specimens, the growths should be pinched on two or three occasions during July and August and no flowers should be allowed to develop, while the final pinching should be made not later than the end of August.

At the beginning of September the plants should be lifted carefully with balls of soil and put into pots of a suitable size, *i.e.*, as small as practicable, while large enough to take the ball without injury to the roots. After they are potted, place them in a cold frame and keep the latter close for a few days to favour new root action. They will soon be able to bear exposure to the air again, and during the rest of the month they may be fully exposed to the sun's rays to ensure perfect ripening of the wood. At the end of that month they may be removed to the greenhouse or intermediate house, where they will soon begin to produce their beautiful flowers in rich profusion.

Bouvardias are liable to be attacked by aphis and thrips which may be kept in check by periodical fumigations. They are also subject to the attack of red spider, hence, when housing the plants it is good practice to stand them on an ash or shingle base which can be kept moist, to prevent the atmosphere becoming very dry.

There are both single and double varieties, and amongst the most desirable singles may be mentioned jasminiflora and candidissima, pure white; Dazzler and Hogarth, scarlet; President Cleveland, crimson; rosea oculata, delicate pink; and The Bride, blush-white. The best doubles are Alfred Neuner, white; Hogarth fl. pl., scarlet; and President Garfield, pink. *W. Auton.*

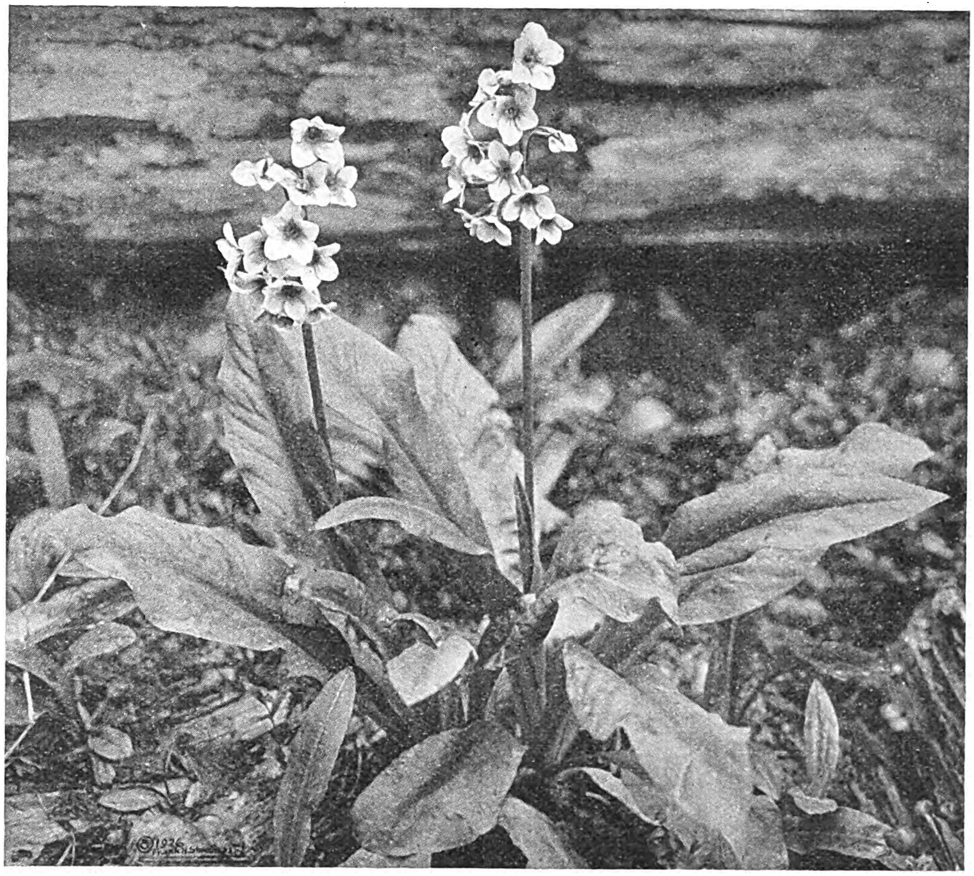


FIG. 16.—PRIMULA PARRYI.
Photographed at Lake Peak, near Santa Fé, 11,800 ft. alt., August 1, 1926.

PLANTS NEW OR NOTEWORTHY.

PRIMULA PARRYI.

From all North America only twenty species of Primula are known, a number that compares very unfavourably with the vast representation of the genus in the mountains of China. Even these twenty species are confined for the greater part to the arctic regions of the North American continent, several being unknown outside Alaska. Most of the few species which do extend to the United States are either rare or inhabit localities difficult of access; none of them grows in the more densely populated regions, hence most Americans pass their lives without ever having seen a Primula growing wild.

Several Primulas are native of the Rocky Mountains, nearly all of them plants which exist only in the higher and less frequented parts of the mountains, usually above or near the timber line. The genus extends southward in the Rockies so far as New Mexico, and from this state four species are known, all of them confined to very limited regions.

Primula Parryi is the largest and showiest of the United States species, and perhaps of all American ones, although it is rivalled by an Alaskan plant. It was named after Dr. C. C. Parry, one of the early botanical explorers of the Colorado Rockies, who was also the first botanist of the United States Department of Agriculture. It is a species of restricted distribution, confined to the high mountains of Colorado and to the ranges of northern New Mexico lying between Las Vegas and the historic city of Santa Fé.

In the latter mountains, where I have seen the plant in some abundance, it grows mostly at altitudes of 9,000 to 11,000 feet, usually in wet, boggy places, surrounded by forests of Colorado Blue Spruce (Picea Parryana), Fir (Abies concolor), and Douglas Fir. Although rather widely distributed here, it is seldom one finds more than a few plants in a given locality. Often they develop luxuriantly in the wet patches of soil just at the edge of the snow banks, which linger on these southern peaks until late August. With golden alpine Buttercups and the delicate bluish chalices of the Elkslip (Caltha leptosepala), the Parry Primula often forms fine masses of colour. It is probably too gaudily coloured and too rank in growth to find favour with English gardeners—to whom it appears to have been introduced in 1875 (see *Bot. Mag.*, t. 6185)—but in its natural surroundings it is very beautiful indeed. Primula Parryi is a vigorous plant, usually twelve inches to eighteen inches high, with lush, bluish-green, smooth leaves, above which rise the large umbels of bright, reddish-purple flowers.

The illustration here reproduced (Fig. 16), is from a photograph by Mr. Frank H. Shoemaker, of Lincoln, Nebraska—who has made excellent photographs of many other New Mexican plants—and gives an accurate idea of the appearance of this Primrose in its natural habitat. The photograph was taken on Lake Peak, New Mexico, August 1, 1926. *Paul C. Standley, U.S. National Museum.*

CHRYSANTHEMUMS IN AMERICA.

ACCORDING to local authorities, the season of 1926 was an unusually cool and damp one, and these conditions encouraged the attacks of certain insect pests and other Chrysanthemum troubles. Certain varieties that are easily affected by excessive moisture suffered rather badly. The general results, however, were beyond my expectations.

The earliest varieties are planted about the middle of May, and other batches follow more or less in their order of flowering, until the third week in June. Those that flower for the Thanksgiving trade, and the Japanese sorts, are the last to be planted. After planting, they make rapid growth until the heat becomes excessive, and this is the period when the anxieties of the growers begin. With the hot weather come swarms of grasshoppers of all sizes, mostly much larger than those we are used to in England. The young growths suffer badly from the ravages of these pests, which feed on the top few inches of the stem and so ruin the buds. To ensure a crop it is almost essential to leave two buds where one flower is required ; not that the grasshoppers will eat one and leave the other, but this gives the plant a double chance—alas ! in many cases a double feast for the pests ! Leaf-rollers are another great trouble out here. Arsenate of lead and lime are dusted on the foliage to help check the invaders, but this dusting is, I think, bad for the plants, and if used very often may contaminate the soil and so do harm to the roots. This is mere conjecture, however, as I have no proofs that it is so. Fumigation with nicotine or cyanide gas may help to kill some leaf-rollers, but as cyanide burns so many varieties it has to be used with the greatest of care or much damage results. The members of the Turner group seem particularly susceptible to injury from cyanide fumes. The results of the grasshoppers' visits are most evident on the earliest varieties.

It is surprising to the inexperienced how well the plants flower after being in such an apparently bad condition through August. After the heat of the summer it is little wonder that the plants should not look so good as those grown out-of-doors in England.

The first varieties to flower are Early Frost (white), and Yellow Early Frost. The buds of these are taken about the first week in July and flower at the end of August and the beginning of September. There are no varieties flowering so early that can compete with these two very good sorts. Both have been tried in England but with little success. After the White and Yellow Frosts are over there is a short time before the midseason varieties are ready. These seem to suffer most during the hot weather and consequently seem to make the most headway when conditions begin to improve.

I shall not attempt to describe all the commercial varieties grown out here, but just give a few notes on those that have struck me as being outstanding in their particular classes.

The best yellows in the decorative class are : Sunglow, Chrysolora, Golden Glory and Adrian's Pride. The first is by far the best variety, flowering towards the end of October ; Chrysolora and Golden Glory flower at the same time and are both very good but not quite up to the quality of Sunglow. So far as I know, Sunglow has not been tried in England ; it is a large-flowered, incurving variety of a good, rich yellow colour. I have seen Adrian's Pride at home, but it was not nearly so good then as I have seen it in America. One batch that I saw flowering for the Thanksgiving trade was as good as any variety I have seen. It was worth going a long way to see.

Two pinks by which I have been very much impressed are Angelo and Thanksgiving Pink. Angelo is a good pale pink variety flowering in early October. In form it is a perfect ball, but not incurved. It is one of the few disbudded varieties that are grown to carry more than one flower per plant—twelve flowers develop perfectly. Thanksgiving Pink, as its name implies, flowers for Thanksgiving Day (November 25). This does much better out here than it did when I saw it in England. It is a good, deep pink colour—not a shade that I favour myself, but a good selling colour at its date of flowering.

Mariana, white ; Cheftain, Favourite, Monument and Timothy Eaton are the best whites I have seen here. Mariana is called a " Pompon" but as it carries several flowers to the plant, which are each four-and-a-half inches across, it would not be classed as such at an English show. It is pure white and of the same form as Angelo. White Chieftain and Favourite hardly need any description. Of the two, I think White Chieftain is the purest white, and has flowers of the best quality. I saw them both flowering about the middle of October, 1926. Timothy Eaton is the favourite white variety for Thanksgiving, but it did not impress me as an outstanding sort, but one could not pass a bench of Monument without stopping to admire the wonderful size and form of its pure white, incurving flowers. It is a variety of really wonderful qualities and at its best about the middle of October.

The only variety of any other colour worthy of special attention is Harvard. This is a crimson of very good quality. In form it is perfectly reflexed and has a good, clean habit of growth.

All the foregoing are grown on raised benches, and, with the exception of Mariana and Angelo, only carry one flower to the plant. The usual spacing is from six inches by eight inches to eight inches by ten inches.

The Japanese varieties I do not wish to compare with those grown in England as they do not appear to be at their best when grown on benches ; indeed, it seems impossible to get the conditions just right to give the real good finish that is possible under pot culture. I would rather have a bunch of out-door spray blooms than half-a-dozen badly finished Japanese flowers.

Many English Japanese varieties are standard sorts out here, R. Pulling, Mrs. G. Drabble, white, pink, bronze and yellow Turner, Earl Kitchener, General Allenby, Lady Hopetoun, Louisa Pockett and its yellow sport, Majestic and Mrs. Chas. H. Curtis, all do quite well. I think Majestic is the best of these when grown on benches. Of the newer varieties, Nan Luxford, Mrs. T. W. Pockett and Sulphur Queen I have seen in quite good condition. Phoenix should do well as an early spray variety.

Undisbudded Pompons are much more popular with American growers than they are in the Old Country. I am surprised (if the true Pompons will do as well in England as they do in America) that they are not more largely grown for the out-door flower trade. The name " Pompon " embraces all sizes from varieties like Candida down to the small Pompons, such as are grown in England ; in fact, any variety that can be grown in spray form is called a Pompon in America. The following varieties are the best of the true Pompons that I have seen so far : New York, golden bronze ; Bronze Queen, Snow Bank, Claret, Coquette, pink ; Ida, yellow ; Flora, crimson ; Hilda Canning, brilliant bronze ; and Capt. Cook, pink (Fig. 14).

It is difficult to compare the American and English results owing to the vastly different methods of cultivation. Where one tries to get as many good flowers on a plant as possible and give plenty of room at home, in America growers want one good bloom to a plant, but as many plants as possible in a given space. I think that the best flowers in both countries are just about on a level with each other, although this observation applies to the decorative section only. I am proud to think that, with all due respect to our American friends, the English growers are ahead of them in the cultivation of large blooms. I must admit that in England there is not the hot, dry summer to contend with, but one may find perfectly good arguments in favour of the growers on both sides of the Atlantic. To-day, November 25, is the first dull, wet day we have had for some time ; it is the sort of weather English growers have to put up with from the middle of September until the end of the season.

As these notes are written by one who has only seen the results of one season's cultivation in one district of the central States, I hope the American champions will not be too hard in their criticisms of them. *Junior Grower.*

HARDY FLOWER BORDER.

TWO TALL RUDBECKIAS.

RUDBECKIA laciniata and R. pinnata are two tall Rudbeckias suitable for planting in the back of herbaceous borders. Both are perfectly hardy and most accommodating plants, and when they have grown into good sized specimens make an effective display with their yellow flowers.

R. laciniata has laciniated foliage and large, yellow blooms. It is an excellent border plant and its cultivation presents no difficulty in any good garden soil.

R. pinnata (syn. Lepachys pinnata) has more pinnate foliage and distinct flowers. These, like those of R. laciniata, are large, and the ray florets of a good yellow. The disc in the centre is, however, dark coloured, so that the two species may well be grown in the same border. In planting a large border with small plants, three may be placed about nine inches or a foot apart, and they will give a better appearance for the first few years and form a good group more rapidly than a single large plant. Both these Rudbeckias may be raised from seeds, sown preferably under glass, or they may be increased by division. *S. Arnott.*

ALPINE GARDEN.

SEDUM SPATHULIFOLIUM.

THIS Sedum, planted freely, is a plant of much beauty, and when it is on the rock garden, it produces a striking effect ; the cushions of opalescent, grey foliage are surmounted by golden flowers on terminal cymes, forked and branched, and not the least attractive feature of the plant are the yellow flower stems with pinkish bases. The variety purpureum has plum-purple leaves with a grey bloom and it is possibly the finest Sedum in cultivation, at any rate, as a rock garden plant.

These Sedums grow from four inches to six inches high and have semi-procumbent stems ; the type was introduced from North-West America in 1873. *Ralph E. Arnold.*

SAXIFRAGA FLORULENTA.

SAXIFRAGA florulenta belongs to a special group, the Florulentae in the section Tristylis and is confined to a small area between the Col de Tende on the east, to the Tinée Valley on the west, and from the Stura Valley on the north to the Var Valley on the south (about fifty square miles). It is found nowhere else, and grows there between 6,000 to 9,000 feet altitude, always on the hard granite and in very narrow fissures, facing north, east or west, but never south.

The plant is monocarpic (it dies after flowering) but can become very old. I once found an old plant more than a hundred years old, fallen from the wall where it flowered. As the plant gives every year only one verticil of leaves (these being pressed very closely together) it is easy to see that when a specimen has stems two feet long and many thousand leaves, it is very old.

The rosette is dark green, shining, covered with a light film of resinous, aromatic varnish, and strongly ciliate. It seldom flowers, and then, just like S. mutata or S. longifolia, it dies. The flower stem is one foot or more long, leafy, gelatinous and covered with short pink hairs, as are all the branches and the flowercups ; the flowers, as the name indicates, are very numerous, relatively big, disposed in a more or less long pyramid of pink petals, lighter in colour than those of Saxifraga oppositifolia and nearer to the colour of the Megasea or Bergenia Saxifragas. They display their remarkable pink, floral pyramids against the dark walls in the highest parts of the Maritime Alps in the months of August and September. As they flower so late their seeds ripen in late autumn, and it is necessary to go there during the hardest frost to collect them. Seeds provide the best means of raising these very difficult plants.

Mr. E. Boissier had in his wall at Valleyres some young plants of it and one flowered in the year 1876; but it is rare that transplanted examples flower in the garden; seedlings are better. But how difficult! They are really calcifuge, and want pure peaty soil with sand. We grow it here in a granitic wall facing north, but it has not flowered at Floraire. We wait with patience, however. *H. Correvon, Floraire, Geneva.*

TREES AND SHRUBS.

SPARTIUM JUNCEUM.

Every gardener worthy of the name has a weakness for particular plants, and if he be wise, does not bother over much in justifying his prejudice. I myself confess to an extraordinary liking for Spartium junceum, a note on which appeared in the issue for November 27, 1926. I like it primarily because it is an unfailingly good doer with me. It does not die out in the course of a few years. Nor does it grow straggly. Of seedlings raised a few years ago, some are now shapely, compact bushes, six feet high and nearly three feet through. The honey scent of the flowers is delicious, and the plants remain in bloom for nearly three months.

Spartium junceum is, in my experience indifferent to soil, does even better in a heavy than in a light loam, and the plant has the final merit which all busy gardeners appreciate, that it can hold itself up against winds without the aid of a stake; altogether, Spartium junceum is, I maintain, a first-rate garden plant, adding grace to the shrubbery, but looking perhaps at its best over-topping a terrace wall. *K.*

HYBRIDS OF SALIX BABYLONICA.

There are many weeping trees on the Surrey and Middlesex sides of the Thames, and in other parts of Surrey, away from any river, that pass for Salix babylonica or the Weeping Willow. Most of the trees are tall and of considerable age, judging from the thickness of the trunk, so that their source of origin cannot be guessed. The lowest trees that have come under my notice are S. babylonica × S. fragilis, and though they are distinctly pendulous in habit, they lack the very long, slender branches of another hybrid with weeping branches. The leaves of the first are quite smooth, as might be expected from the parentage; but the serratures are larger than those of S. babylonica, and irregular in size and spacing, as in S. fragilis. The fruits are also stalked as in the latter. This tree was named S. blanda by H. J. Andersson in 1863, and the discoverer, Clemenson, gives its habitat as Germany. The other hybrid is S. sepulchralis, and was first described by Simonkai La, in new plants of the Flora of Hungary. The parentage was S. alba × babylonica, and the influence of the first named parent may be seen in the silky hairs upon both sides of the leaves that persist till October, perhaps till the leaves fall. The tree is a very tall, handsome weeper, with long, slender branches, reaching almost to the ground. It was first described in 1890. *J. F.*

CISTUS LADANIFERUS.

We grow in a hot and sunny place at Floraire the best of all the Cistuses, I think; I mean C. ladaniferus. The plant has been twenty-four years in the same place and is now a shrub five feet to six feet high. The leaves are large and evergreen, resiniferous, covered with a glutinous and strong smelling gum, and on hot days, when the sun is bright, the odour of the shrub reaches the end of our garden; even in winter time one is sensible of the fragrance.

The flowers are as large as those of a wild Rose, white, with a rich brown spot at the base of each petal; they last only half-a-day or, if the weather is not too hot, until four or five o'clock in the afternoon. But they are very showy, and from May to July they make a brilliant display.

Curiously, we never could succeed to rooting cuttings of C. ladaniferus, and it never seeds here. We are obliged to get seeds from the south where the plant is not common at all. Once, I drove through the Esterel, coming from Grasse to Fréjus and was arrested by a beautiful, strong scent that I recognised as emanating from Cistus ladaniferus. I stopped and found not far from the road, a large group of this marvellous plant, the seeds being just ripe.

It is said that oriental folk are very fond of the scent of this Cistus and make with it the famous perfume called "labdab." *Henry Correvon, Floraire, Geneva.*

RUBUS GIRALDIANUS.

Of the several species of Rubus cultivated for the attractive appearance of their stems during the winter, this is undoubtedly one of the best. The stems are remarkably white, equalling in this respect those of the much better known R. biflorus.

The arching, branching stems give to the plant an exceedingly graceful habit.

Although an easy subject to grow, it responds well to good cultivation, and succeeds best in good loam that has been well worked; a mulching of decayed manure, annually, considerably increases the vigour of the plant. It is essential that the previous year's stems should be removed entirely so soon as they have flowered and fruited, leaving only the current year's shoots. *T. H. Everett.*

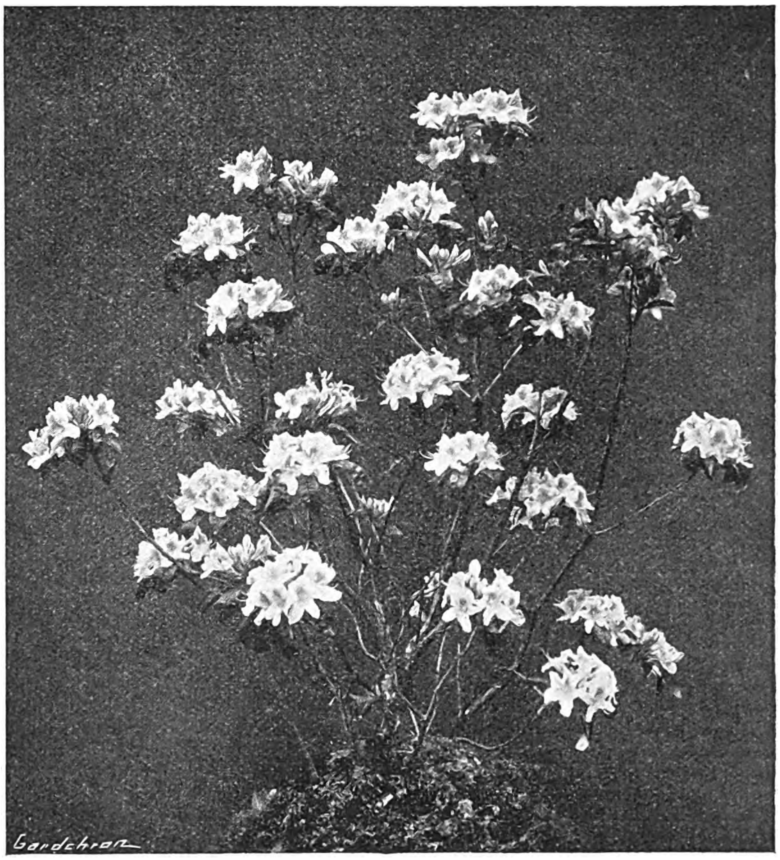


FIG. 17.—AZALEA × GLORY OF LITTLEWORTH.

JASMINUM NUDIFLORUM.

This lovely Chinese shrub was introduced in 1844, and is well-known throughout the country. It was in bloom a few days earlier this season, which might be accounted for by the mild, open weather of the past autumn. It is a shrub that should be planted in various aspects; even in the north it will flower in the depth of winter. It is probably seen at its best when it adorns the walls of a thatched cottage by the wayside, or in a snug nook in some old-fashioned garden. The thin growths give the plant a graceful habit and they should not be trained tightly but allowed to droop naturally. The flowers are produced on the young wood, and pruning consists in removing the old flowering shoots and weak wood immediately the flowering season is over, to encourage a plentiful supply of young wood to develop and mature for the next season.

The flowering shoots offer good material for cutting, the flowers opening freely in water in a warm room, and they last a considerable time. As the plant is bare of leaves when in flower, sprays of the common Barberry or Berberis stenophylla may be used with the cut branches in vases. Even if the first flowers are spoiled by frost, the remaining flower buds soon open on the return of more genial conditions.

Propagation is easily affected by cuttings; old plants develop roots at the ends of the shoots when they rest on the ground during wet seasons, and these rooted growths offer another means of increase. *R. F.*

AZALEA GLORY OF LITTLEWORTH.

The very beautiful flowering shrub known as Azalea Glory of Littleworth is a hybrid between an Azalea and a Rhododendron. It has Azalea-like flowers of creamy white, blotched with orange. The leaves are lanceolate, short-stalked, and wrinkled. This fine subject received the R.H.S. Award of Merit on May 23, 1911, when exhibited by Miss Mangles. The plant illustrated in Fig. 17 was exhibited by Mr. Lionel de Rothschild (gr. Mr. A. Bedford) at the Special Rhododendron Show held in the R.H.S. Hall on April 27, 1926, and was a noteworthy plant in a noteworthy exhibit.

PRUNUS SUBHIRTELLA VAR. AUTUMNALIS.

This small, deciduous tree is one of the most interesting of its family as it opens its first flowers during November and December and continues to give a few blooms during mild weather all through the winter. It is at its best during March and April.

Although the flowers are small and pale-coloured compared with those of many other species and varieties of Prunus, it makes an attractive small tree or shrub, with its twiggy, erect branches, covered with pale, rose-coloured flowers, which, with age, change to white. *F. W. G.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard, 1543.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

GREEN MANURING.

During December last, a Conference was held at the Rothamsted Experimental Station on the subject of "Green Manuring: its Possibilities and Limitations in Practice." Although the subject was discussed mainly from the agricultural point of view, the scope of the papers and of the ensuing discussion was wide enough to merit attention by the horticulturist as well as the agriculturist.

Few will dispute that dung is the best all-round source of the organic matter needed in all soils, but, unfortunately, dung is often very difficult to obtain in sufficient quantities and at a reasonable price, especially for the grower who keeps no stock and is therefore entirely dependent on outside sources. Green manures offer, in such cases, an attractive alternative source of humus for the soil.

That green manuring is capable, under favourable circumstances, of bringing about notable crop increases, is shown by the experiences cited by several of the speakers at this Conference, and by a number of accredited experimental results, some of the most striking of which were quoted by Mr. H. J. Page, Chief Chemist at Rothamsted. One such experiment was carried out by Mr. Page when he was chemist at Wisley, which demonstrated clearly the beneficial results obtainable by green manuring on a light soil. Market garden soils are predominantly of the lighter sort, which stands in special need of an ample supply of humus. However, although the horticulturist is thus perhaps specially marked out as likely to benefit from the successful use of green manures, his circumstances are also such as to aggravate the practical difficulties in the way of such successful use. This side of the subject received much attention at the Conference.

The widest and most intensive employment of green manuring demands the coexistence of several factors: favourable climate, reliable seasons, and uniform soils and cropping. All of these obtain in the tropics, but in this country they are conspicuous by their absence. The great variations in soils and cropping, together with the necessity that green manure crops must be produced without disturbance to those main crops on which the grower depends for his income, make the problem of the more extended use of green manures in this country a very local one. The exact procedure to be followed can be determined only in close relation to the actual conditions of the district and the circumstances of the grower. This is true of the farmer, and it is still more true of the horticulturist, whose systems of cropping are more varied and more intensive, so that he is usually still less able to spare any time for growing a non-marketable crop, or to risk the loss of a marketable one. This aspect of the subject received attention in an interesting paper by Mr. H. Mattinson, Agricultural Organiser for Surrey, a county with a considerable area of market gardening, as well as a large residential population and many small gardens. In one respect the market gardener is perhaps better situated than the farmer to practice green manuring: he grows more special crops that come off the ground early in the season, so that there are more opportunities for sowing a catch crop under favourable growing conditions, for digging in later, if the land can be spared. An example of this is the practice, favoured in some parts of Surrey, of sowing Tares and Rye, or Mustard, after early or second-early Potatos.

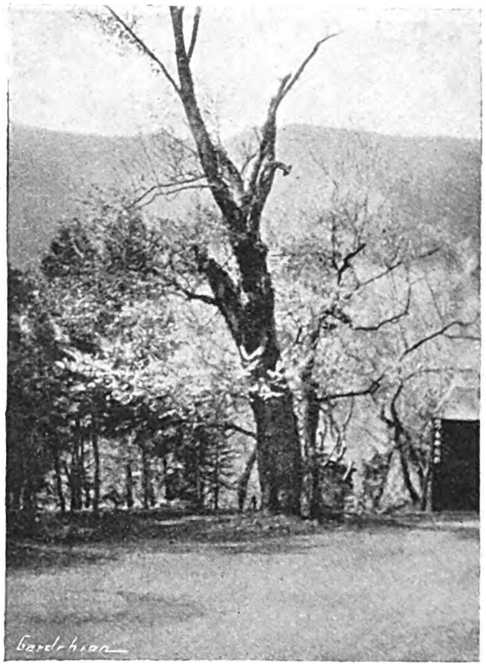


FIG. 18.—PRUNUS SACHALINENSIS: AN ANCIENT SPECIMEN ON THE CHUZENJI ROAD, JAPAN.

(see p. 31).

The possibility of profitably using green manure can be decided only by careful attention to the actual circumstances in each individual case, but the system is one with such attractive features that it deserves the careful consideration of all gardeners, private or commercial. The Rothamsted Conference has served a useful purpose in summarising existing knowledge and experience on the subject, and it is satisfactory to know that a full account of the proceedings, both papers and discussion, is to be published in pamphlet form.

A PLEA FOR NEW EARLY TULIPS.

A century ago it would not have proved difficult to find enthusiasts in all parts of the country intent on raising new varieties of Tulips. Perhaps the zenith of enthusiasm was reached some twenty-five years later. So well did our forbears labour that few, if any, improved early-flowering or florists' varieties have found a place in commerce during the past fifty years or more. One might even go further than this and assert that some, if not most, of the early-flowering varieties which are now counted among the most popular, have not been raised during the last hundred years! Why has there been no progress for so many years with the useful "earlies" and their more magnificent relatives the "Florists'"? They occupy a place in floriculture for which no substitute is to be found.

There was a period between the years 1860 and 1890 during which the culture of Tulips was sadly neglected, and it may be supposed that succeeding generations of gardeners have never seriously taken up the thread of progress from the point where their grandfathers laid down their task. It cannot be argued that the highwater-mark has been reached, for there are yet wide fields of possibilities that have never been explored. The introduction of those magnificent species Tulipa Greigii and T. praestans, together with a number of others, such as T. persica, T. Kaufmanniana and T. Eichleri from Turkestan and the Ural regions seem to afford wide opportunities of progress, particularly as their flowering season synchronises with the date of the existing early-flowering kinds, but there is little evidence of serious effort having been made to take advantage of this new blood.

A serious pitfall for the experimentalist lies perhaps in the fact that a number of these species produce very few offsets, while some do not appear to give any at all. This feature might well be transmitted to their offspring.

A hopeful line of quite modern progress is the crossing of the very early Duc van Thol with Darwin varieties, resulting in early-flowering Tulips of Darwin vigour and length of stem, among which are to be found a number having colour and quality of quite exceptional merit. These are known as Mendel's Tulips, and the varieties Amidonette, April Queen, Early Beauty, Lilaran, Oranja and Salmoran may be noted as the best amongst the first dozen of this class offered for sale.

New interest was created in Tulip culture by the introduction of Darwin Tulips by Mr. Krelage in 1889. Their origin is something of a mystery, in regard to which Mr. Krelage steadfastly refused to afford any light. The form and quality of Darwin Tulips, no less than the fact that the first varieties were followed by a rapid succession of flowers of similar type, bear evidence that they were the product of many years of careful cultivation and selection in a direction which was at that date entirely new and unorthodox. The introduction of these new May-flowering Tulips in place of the older April-flowering, bedding varieties, and the natural scarcity of stocks in the early years after their introduction, caused attention to be given to other late-flowering Tulips—the unbroken "breeders" and discarded seedlings and "breaks" which florists had hitherto rejected for the reason that they did not comply with the then rigidly fixed standards of form and marking. Gardeners were awakened once again to new interest in Tulips and found for themselves new standards of beauty and perfection which in the flood of enthusiasm thrust academic standards aside and left them to the quiet backwater of content in which they may still be found. The very names of those wonderful old "florists'" flowers are unknown to modern dealers and growers. Very few indeed among the present generation could even suggest where such varieties as Trip to Stockport, Annie McGregor, Dr. Hardy, Surpasse le Grande, Sir Joseph Paxton, Sam Barlow, etc., are to be found. They have become the emblems of an ancient cult—the treasured possessions of a small fraternity who annually worship at their shrine, and are in no way anxious to expose their beauties to the vulgar gaze.

Substantial progress has been made during recent years in the improvement of May-flowering varieties. Afterglow is a beautiful, rosy-apricot sport from Baronne de la Tonnaye, but it is altogether eclipsed by Dido, a flower of exactly the same colour. Zwanenburg and Carrara represent the highwater-mark of excellence in whites, while Vesta, the white May-flowering variety—not the broken bizarre of the same name—will undoubtedly be a leader in the class when better known. Noticeable features of these new Tulips are their length of stem and size of flower. The beautiful new

Lily-flowered, yellow Alaska often reaches thirty inches high, while Louis XIV and Burgomeister Sandberg are other giants. There are numbers of new bronze, orange and yellow varieties, such as Orange Beauty (syn. Prince of Orange) and Canary Queen, which will unquestionably increase in popularity, as they so exactly comply with modern taste, but all these flower in May. The need is for varieties of similar merit to flower a month earlier to fill the hiatus immediately following the Daffodil season.

The hybridising of Tulips upon the lines suggested would be both interesting and profitable. The actual process is simple. No better advice can be given than to study the chapter on the subject contained in the late Rev. Joseph Jacob's book on *Tulips.* Care should also be taken of early-flowering "sports" showing merit, as many valuable varieties are to be secured by this means. From that well-known old variety, La Reine, have been produced flowers of such diversity as White Hawk, Herman Schlegel, and Flamingo, all of which have originated as sports, and similar instances may be multiplied *ad infinitum. Herbert G. Longford, Abingdon.*

SARGENT'S CHERRY.

IN his *Cherries of Japan,* Wilson states that this species is commonly planted in Central Japan, but adds that he did not see undoubtedly wild trees south of Uzen, a province now called Yamagata. The first statement is contrary to my own experience. As a matter of fact, in the low-lying districts of the central and southern provinces, this Cherry does not appear to thrive, and the only example I saw in these localities was a crippled specimen in the Botanical Gardens of Tokyo. There are none in the famous Cherry Avenue at Koganei. In the mountains it certainly reaches as far south as the Yamanashi department in the Kai province, for I met with isolated specimens scattered through the deciduous forests between Lake Shoji and Lake Motosu, at three thousand feet or more, and I encountered it again in the Nikko district under precisely similar conditions. The former locality is at least 160 miles south of Yamagata province.

At the time of my visit the trees were conspicuously beautiful, and the thickly-massed bloom formed clouds of pink that could be seen for miles against the brown background of the still leafless forests. These alone, I consider, were almost sufficient to repay me for my thirty-thousand-mile journey. From my young plants in England I had often tried to visualise the splendour of a mature tree in full flower, but my wildest imagination fell far short of reality. In the soft spring sunlight they were inconceivably lovely. Standing fully fifty or sixty feet in height,* all their boughs were wreathed in rosy-pink, through which peeped the burnished copper of the unfolding leaves. Growing in a wild landscape of mountain, lake and torrent, with Mount Fuji, or the Nikko range, towering snow-capped in the distant background (Fig. 19), these trees had an almost ideal setting. In the bright weather of a Japanese autumn, this Cherry must again be an object of great beauty, for even in England—where the climate does not favour autumn tints—the foliage assumes strikingly vivid colours. With me, quite early in the season, the leaves change to reddish orange and fiery crimson. As seen in its native country, no praise can be too extravagant for this tree.

From other Japanese wild Cherries, Prunus sachalinensis may be distinguished easily by the relatively large size of its pink flowers and the complete absence of any visible peduncle. The leaves are broader and rounder than those of the Hill Cherry (P. mutabilis), which is the species commonly met with throughout the central and southern provinces. Other characteristics of Sargent's Cherry are the viscid bud scales and the dark chocolate-brown colour of the two- and three-year-old bark.

Owing to the fact that Cherry wood has been in demand for hundreds of years for making blocks for colour printing, fully mature trees are very seldom met with in Japan. On the Chuzenji road, however, there is an ancient specimen (Fig. 18), that has escaped the woodman's axe—possibly on account of the unusually large size of its flowers, which measure over one-and-three-quarter inch in diameter. This tree is no longer in its prime and its dead and "stagged" boughs are eloquent proof that its years are now numbered. The trunk, when I measured it last spring, was eleven feet in circumference, one yard above ground-level,

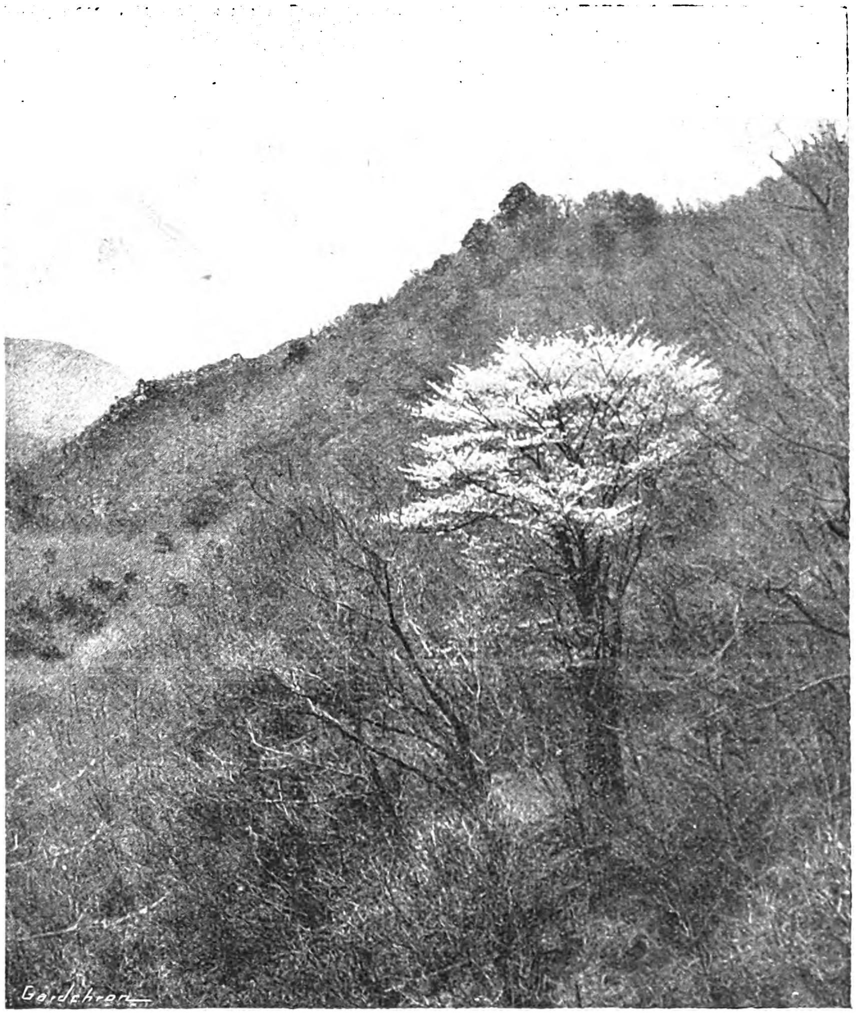


FIG. 19.—SARGENT'S CHERRY IN THE MOUNTAIN FOREST, NEAR LAKE SHOJI, JAPAN; MT. FUJIYAMA IN THE BACKGROUND.

Sargent's Cherry was introduced into America in 1890, but it did not reach this country until several years later. It does not seem to prosper in the light, gravelly soil of Kew, and probably prefers a cooler climate with a richer and moister rooting-medium. It should be quite hardy in all parts of England. I possess specimens, both worked on Prunus Avium and growing on their own roots; up to the present the latter do not appear to be making quite such good progress as the grafted plants.

I have seen a photograph of a large, pink-flowered, wild Cherry taken in Corea, which I suspect may belong to this species. As I have recently obtained seeds from that country, I hope, in due course, to be able to satisfy myself on this point. Judging by the photograph, it appears to be quite as fine, if not finer, than Prunus sachalinensis. *Collingwood Ingram.*

---

*I saw one tree, drawn up by the forest growth, at least eighty feet high.

MESEMBRYANTHEMUM.

(Continued from page 12.)

1. CONOPHYTUM, N. E. BR.

THE following species are mostly additional to those already published in *The Gardeners' Chronicle,* 1922, vol. LXXI, p. 198, and 1925, vol. LXXVIII, p. 450, and indicate that this genus is a very large one. A century ago about ten species were known; at the present time (including those described below) over ninety species have been described, most of which I have in cultivation, and considering the vast area in South Africa in the region where these plants thrive that is as yet unexplored, there are doubtless very many more awaiting discovery, besides several new ones I possess that will be described later.

As I have previously stated, it is almost impossible to make descriptions of these very remarkable plants from which they can be identified, as they have no parts or organs by which they can be contrasted for that purpose. And it is very unfortunate that very little is known of their range of variation, as this has never been investigated in their native country. But from material that has been sent to me from the same general region inhabited by a given species, received sometimes from the same contributor at different times, sometimes from different contributors, I find that some species undoubtedly vary considerably in appearance, so much so, that without knowledge of their origin, most would consider them, in certain cases, to be distinct species. I find this to be particularly the case with Conophytum placitum, C. polulum, and C. truncatellum, and species of Lithops also vary very much. Therefore, plants from the same general locality that show some affinity to one another, and at the same time seem quite distinct in markings or appearance should be suspected to be variations of one species until flowers or other characters definitely prove them to be distinct. When raised from seeds taken from the same plant, I have found some species to vary greatly, and in the case of C. polulum and C. placitum repeating the marked variations of plants received direct from South Africa.

One of the best characters by which nearly allied but really different species can be discriminated is the minute structure of the epidermis as seen under a moderately strong pocket lens. The character of the epidermis when it differs, must, I think, indicate a real specific difference in the appearance of the plant, but, unfortunately, it is a distinction that is not always a describable one.

Figures of the types of form alluded to in the descriptions will be found in *The Gardeners' Chronicle* for 1925, vol. LXXVIII, p. 450.

All the species are arranged alphabetically and those described as new below are quite distinct from all others; in surface-contour the angular form of C. novellum, and the very distinctly prominent separate dots of C. praeparvum cause these two species to stand out as being remarkably different from any others at present known. The peculiar loosely-forked stems of adult plants and neat-looking growths of C. Marlothii also mark this as one of the most striking in the genus.

Apart from the genera Lemna and Wolffia, the individual growths of the smaller species of this genus Conophytum are, I think, the smallest among flowering plants, and the flower is sometimes 3-4-times the diameter of the growth in size, as, for example, in the exceedingly beautiful C. minusculum.

C. andausanum, N. E. Br.—Growths as received, 5-6 lines high, 5-6½ lines broad, and 4½-5 lines thick, slightly compressed-obcordate, with a notch about 1 line deep at the top, and the lobe on each side of it rounded on side view and obtusely keeled; smooth, glabrous, dull green, sparsely sprinkled with small dark green dots, and with the notch outlined with a dark green or purplish line, from each side of which there extends a similar green or purplish line along the keel of the lobes. Flowers unknown.

Little Namaqualand: At Andaus Poort near Anenous, in the Richtersveld, Marloth 6908!

This species is nearly allied to C. diversum, described below, but differs very distinctly by the very conspicuous continuous line that outlines the notch and extends along the keels of the lobes.

The alliance of both these species appears to be with C. gracilistylum, N. E. Br.

C. clarum, N. E. Br.—Growths as received small, about 4 lines high, 2-2½ lines broad, and 1¾-2 lines thick, obconic, elliptic in outline and broadly rounded at the top (type D. or E.), with a very slight central notch; orifice ½-¾-line long, very slightly depressed below the general level of the top, which is convex (not ridged) as viewed transversely to the orifice; surface smooth, glabrous, of a bright clear green, not at all shining, thinly sprinkled on the top with 20-30 small, dark green separate dots, and with a dark green blotch at each end of the orifice, usually formed of 3-5 dots connected together, and the blotches occasionally connected by very slender, dark green lines, so as to outline the orifice, which otherwise is not very distinct. Flowers not seen. Capsule 2 lines in diameter, 5-angled, with 5 valves and cells, slatey-grey. Seeds minute, scarcely ¼-line long, smooth, brown.

Calvinia Division: growing on or among granite rocks on the foothills of the Langeberg range, Pole Evans 6022!

Described from a living plant kindly sent to me by Dr. Pole Evans. This is a bright looking little species, quite distinct from any other I have seen.

C. Comptonii, N. E. Br. (Fig. 20).—Growths very small, as received 2 lines high and 1-2¼ lines in diameter, but will probably become larger under cultivation; obconic, convexly-subtruncate at the top, which is circular or elliptic in outline and has a faint keel across it transverse to the orifice, which is ½-⅔ line long, and distinctly depressed at each end; surface glabrous and slightly irregular from the markings being faintly elevated, greyish green with a faint brownish tint, with a horse-shoe-shaped mark of very dark green at each end of the orifice and a series of small dark green dots and markings around the margin of the top. Flowers not seen.

Malmesbury Division: Near Nieuwoudtville, Compton!

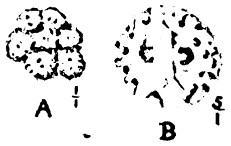


FIG. 20.—CONOPHYTUM COMPTONII.

A. Cluster of growths, natural size as received; B. a single growth enlarged five diameters.

For this minute but very distinct species I am indebted to Professor R. H. Compton, the Director of Kirstenbosch Botanic Gardens, after whom I have named it. Although a large genus, the species are grouped into few types, many kinds having a similarity in general appearance, but this very interesting species agrees with none of them, being quite distinct from all that are known to me, and therefore, although very small, by its great distinctness all the more suitable to bear the name of its energetic discoverer.

C. diversum, N. E. Br.—Growths as developed the first year after importation about 6 lines high, 4-5½ lines broad and 3½-5 lines thick, slightly compressed, cuneately obcordate, 2-lobed at the top, with the notch 1-2 lines deep and the lobes more or less closed together at their lower half, at least in the young state of the growth; lobes rounded at the top in side view, somewhat as in type P, somewhat compressed laterally into an obtusely-rounded keel; surface smooth, glabrous, light green, with a small and slightly darker patch at the base of the notch, and thinly sprinkled all over with very small, darker green, separate dots, but without a dark line along the keel of the lobes or around the lips of the orifice. Flowers not seen.

Little Namaqualand: near Anenous, in the Richtersveld, Marloth 6906!

C. ectypum, N. E. Br., in *The Gardeners' Chronicle*, 1925, vol. LXXVIII, p. 468. At the place quoted, the description of the flower was made from a dried flower sent to me by Dr. Marloth, and the colour appeared to be magenta, as there described. My plant of Marloth 6365B, having now flowered, I find that the petals are not magenta, but of a delicate rose-pink, and there are four series of stamens and the style is 5½-6 lines long, instead of being as described. Whether this species varies to this extent, or whether some mistake was made in the flower sent to me, I do not know; flowers developed in future may determine.

C. Brownii, Tischer in Moller's *Deutsche Gärtner-Zeitung*, July 21, 1926, p. 257 is, in my opinion, a mere form of C. ectypum that is more truncate at the top and has a few more lines upon it; there is no other difference. Both plants were collected at the same locality and were both sent by Dr. Marloth. I find that several species vary much in shape and markings, so that without other evidence I do not regard them of specific importance when the various forms come from the same place.

C. flavum, N. E. Br.—Growths 4-7 lines high and 3-6 lines in diameter, obconic, circular or elliptic in outline viewed from above, convex on the top, with a slight notch at the orifice on the larger growths only (type E.); orifice 1-2 lines long, slightly depressed, not gaping; surface smooth, glabrous, greyish-green, purplish on the sides, with the orifice outlined by a thick, dark green line and with some (not very numerous) separate dark green dots scattered over the top. Calyx 5-lobed; tube (but not the ovary) exserted, about 3 lines long, pale greenish; lobes 1-1¼ line long, oblong, obtuse or subacute, green or perhaps reddish in full sunshine, pellucid-dotted. Corolla 6-7 lines in diameter, expanding in the morning in bright sunshine, closing at the latter part of the afternoon, not scented; tube finally about 1½ line longer than the entire calyx, pale yellowish; petals about 35 in about 2 series, 3-3½ lines long, ½-⅔ line broad, linear, obtuse and slightly notched at the apex, bright golden yellow, shining. Staminodes none. Stamens about as many as the petals, in 2-3 series, all collected together at the mouth of the corolla tube and more or less exserted from it; filaments yellow at the upper part; anthers of the same yellow as the petals. Style 4 lines long, nearly as long as the stamens, slender, with 4 minute stigmas ½-line long at the top, yellowish at the upper part, greenish below. Capsule when closed about 2 lines in diameter, obconic, flat on the top, with 5 valves and cells. Seeds about ¼-line long, smooth, pale brown.

Little Namaqualand, on shale rocks, near Steinkopf, Marloth 6904! Meyer (Marloth 6319)!

Described from a living plant kindly sent to me by Dr. R. Marloth. It is the first species I have seen of the small obconic type that has bright yellow flowers opening in the morning in sunshine.

C. hians, N. E. Br.—Growths they are first after importation 2-4½ lines high, 2-4 lines broad, 1¾-3 lines thick, slightly compressed, obovoid or obconic, very shortly 2-lobed from a very gaping notch ½-1 line deep, and ½-1¾ line wide at the top (type somewhat as at B.); lobes slightly keeled on the top, rounded into the back in side view; surface smooth, minutely puberulous and somewhat velvety to the touch, light green, without dots, but the keel of the lobes becoming reddish and the notch distinctly outlined with a darker green or perhaps reddish line when exposed to full sunlight. Flowers not seen.

Little Namaqualand: Locally frequent at Lekkersing, in the Richtersveld, Marloth 6915! 6928! 6929!

Described from living plants received from Dr. Marloth. Its small size, puberulous surface, gaping orifice and absence of markings clearly distinguish this from all other species.

C. kubusanum, N. E. Br.—Growths 2-3 lines high and 2-3½ lines in diameter, shortly obconic, circular in outline viewed from above, and nearly flat on the top or very slightly depressed at the centre (type nearly like F.); invested in friable, greyish sheaths; orifice ½-line long; surface smooth, glabrous, of a rather dark dull grey-green, marked with numerous separate scattered dots of darker green on the top and the orifice outlined by a dark line. Flowers not seen.

Little Namaqualand: At Kubus, in the Richtersveld, Marloth 6920!

Described from a living plant kindly sent to me by Dr. Marloth, who has included under the number 6920 what appear to me to be two distinct species. One of them is the type of C. kubusanum, and is described above, this has the growths densely crowded. The other form has the growths rather loosely clustered, they are 4-5 lines long and smaller in diameter than the plant above described, are elliptic instead of circular in outline and convex on the top, but the markings are very similar to those of the plant described, but fewer. Until both flower I cannot determine if these are distinct, as I suspect, or only varieties of one another.

C. limbatum, N. E. Br.—Growths 5-7 lines high, 2½-4 lines broad and 2½-4 lines thick, somewhat obovoid, slightly notched at the top with a slight and very obtuse ridge transverse to the notch, circular in outline viewed from above (type L., on a small scale); orifice about 1 line long, with gaping, triangular lips; surface smooth, glabrous, green, with a broad dark green line around the orifice and usually a dark green (or under continuous sunshine probably purplish) line along the top of the lobes, with or without another line or dot or two on each side of it, which are not raised above the general level. Flowers not seen; stated by Dr. Marloth to be purple.

Little Namaqualand; near Steinkopf, Meyer (Marloth 6508)!

This is evidently closely related to C. ectypum, N. E. Br., but as cultivated by myself under the same conditions it appears to be distinct. It is rather larger and of a lighter green colour, the orifice is less defined, the dark markings are not raised as they are in C. ectypum, and when examined under a strong lens the microscopic structure of their surface is quite different; in C. ectypum the dark markings under a lens appear very smooth and shining or polished, and the stomata (seen as minute whitish dots) are in a network of faint depressions and appear as paler patches between the dark polished lines on the top, but in C. limbatum the dark markings are not so shining and are seen to be minutely and densely pitted, and the stomata do not form pale patches between them; the corolla is light rose-pink in C. ectypum, but is stated to be purple in C. limbatum by Dr. Marloth, and when better known may prove to show a difference in structure. *N. E. Brown.*

(*To be continued*).

NITROGEN FIXATION AND OUR FOOD SUPPLIES.

The great industrial expansion and increase of population during the last century in this country soon reached a point where food requirements were greater than home supplies. From that time to the present we have imported large and increasing quantities of essential food stuffs. Such supplies have been drawn from the great open fertile spaces of the world. The wonderful virgin plains of Canada and the United States, to mention one region only, yielded splendid harvests year after year without the addition of artificial fertilisers. Agriculture in such districts was living on the accumulated resources of centuries. The situation in this country, however, has been quite different for many years. It is true that a plot of ground will go on yielding a Wheat crop of a sort without addition of manure of any kind. There is such a one at the Rothamstead Experimental Station, but the yield per acre soon falls below an economic limit.

Nitrogen in a chemically combined form is one of the essentials of plant life. Nitrogen constitutes about four-fifths of the air we breathe, but in the air it is in its native elemental condition, and as such, is practically useless for agriculture. There are in the soil certain bacteria which are capable of assimilating and combining nitrogen direct, but the quantity which they can thus 'fix' falls greatly short of that required under modern agricultural conditions. Nitrogen is an inert material and does not combine readily under easily obtainable conditions.

It is usually added to the soil in the form of a combination with oxygen or with hydrogen. Up to fairly recent years the principal sources of supply of fixed nitrogen have been the great Chile nitrate fields, the product of which, sodium nitrate, may be classified as an oxygen compound of nitrogen, whilst the other, the familiar sulphate of ammonia, which may be regarded as a hydrogen compound of nitrogen, has been derived as a bye-product from the distillation of coal.

Now, since water is composed of hydrogen and oxygen, and the air of nitrogen and oxygen, it will be seen that the raw materials for the fixation of nitrogen are, at least in part, common to the whole of mankind. It has already been mentioned that for many years we have been living on the stored up agricultural resources of the world. Whilst these are far from being exhausted, their call for outside assistance in the form of fixed nitrogen is definitely increasing; to-day it is considerable; in the near future it will be enormous. It is, for example, open to grave doubt if the Chile nitrate fields and the gas works industry could between them supply the present nitrogen requirements of the world.

The rise of the synthetic nitrogen industry is one of the greatest chemical achievements of modern times, and is one of the utmost importance for the future of our food supplies. As this article makes no pretence to be exhaustive it is possible to give a broad summary of the industry.

It has already been mentioned that nitrogen is required combined either with hydrogen or oxygen; in either case the resultant material requires another substance to, as it were, solidify it and hold it down. The product of the combination of nitrogen and oxygen is an acid, nitric acid, which must be neutralised by an alkali, usually lime, before it can be used in agriculture, whilst the combination of nitrogen with hydrogen is an alkaline gas (ammonia) which must be neutralised with an acid, usually sulphuric acid. From the point of view of Great Britain it is impracticable to combine nitrogen with oxygen. In countries where the abundance of waterfalls furnishes very cheap electric power, it is possible to burn the air itself by means of an electric flame, forming nitric acid. This process is impracticable in Great Britain, and we have therefore to fall back on the combination of nitrogen and hydrogen, or, as the ancients would have put it, air and water. Here again, by reason of our lack of water power, an attractive possibility is ruled out. It is well known that by passing an electric current through water the latter is decomposed into hydrogen and oxygen gases, which appear separately at the places where the electricity enters and leaves the water. This process is dependent on cheaper power than we can produce in this country. So far as we are concerned the problem is solved by our great national asset of coal.

A process has recently been developed on a great scale in the north of England, at Billingham, County Durham, at the works of the Synthetic Ammonia and Nitrates Limited, a constituent of Imperial Chemical Industries Limited, which is already tending to, and will eventually, render us independent of foreign supplies. The raw materials are water, air and coke. It may be described in a simple manner by saying that coke is burnt, burning being combination with oxygen, in a mixture of air and steam, in such a way that the coke robs both the air and the steam of their oxygen and leaves a mixture of nitrogen, hydrogen, and the combustion product of coke, namely carbon dioxide. The carbon dioxide is removed with little difficulty, leaving a mixture of nitrogen and hydrogen which are the constituents of ammonia. These are then brought to a very high pressure and passed over a catalyst. A catalyst is a material which promotes, but takes no part in a chemical reaction, and can be used over and over again. They combine and form ammonia gas, which has to be reduced to a form which will render it useable and transportable. This is done by means of the above mentioned carbon dioxide, which, combining with ammonia to form ammonium carbonate, acts by double decomposition, on calcium sulphate, a material which this country possesses in very great quantities. Ammonium carbonate and calcium sulphate yield ammonium sulphate—the chemical name for sulphate of ammonia, and calcium carbonate. The sulphate of ammonia produced as outlined above, is a first-class agricultural and horticultural manure. It can only be profitably made in enormous units with very high output, and it may be predicted that the future nitrogen supplies of the world will be produced at quite a limited number of places, one, and not the least important of which, will be in this country.

There is a very interesting connection between the fixation of nitrogen and the supply of explosives in war time. This country in the Great War derived the whole of its fixed nitrogen supplies from Chile. Germany did not go to war until she was assured that her nitrogen fixation industry was sufficiently developed to supply her requirements, as she could not hope to keep open the long sea route to Chile. It is now common knowledge that both the Allied and enemy General Staffs under-estimated their requirements in the early stages of the war and that Germany was compelled to and did expand her synthetic production enormously.

Explosives for war purposes may be roughly classified into propellants such as cordite, and explosives proper, such as T.N.T. and ammonium nitrate. All these materials which modern warfare consumes literally in thousands of tons, require nitric acid for their manufacture. It has just been stated that the great newly-established British nitrogen fixation industry produces ammonia. Ammonia when burnt with a limited supply of air yields nitric acid. It will thus be seen that both for peace and war the new development is of the greatest national importance. *F. A. Freeth, F.R.S.*

HARDINESS IN PLANTS.

"Is it hardy?" is a question familiar to all who sell herbaceous and alpine plants, and it will undoubtedly become still more persistent as a result of the early and somewhat severe visitation of frost in the autumn of 1926. For several years we have had mild winters, and many plants have so successfully survived two, three, or more years, that we have grown perhaps a trifle too ready with an affirmative reply. Revision of some of the verdicts of recent years will obviously be necessary, even though the remainder of the winter provides no record-breaking frosts, but it behoves us to be wary of hasty and sweeping condemnation of good plants because we find some gaps in the borders and on the rock garden this coming spring.

Hardiness is, after all, relative or problematic in regard to quite a considerable proportion of our garden plants, and any decision to rigorously exempt anything and everything which cannot be depended upon to thrive and survive under varying conditions would rob British gardens of a very large number of plants which have become absolutely indispensable to our twentieth century standard of horticulture.

Much depends upon environment, and one can but acknowledge the wisdom of accepting the inevitable when it becomes plainly evident that a particular garden is incapable of keeping alive, perhaps, Crinums, Gerberas, Eucomis, or Mutisia decurrens, but one is disposed to place a low estimate upon the sincerity of the vaunted enthusiasm of a plantsman who banishes with disgust a plant for which he has professed affection simply because it has succumbed to unfavourable conditions. Alas! The hasty juror is usually vindictive to the extent that he will at every opportunity urge others to have nothing to do with the plant that he has placed under the ban of his disapproval.

Winter mortality is in a very large proportion of instances due, as much or even more, to cultural defects, whilst the whole blame is attributed to incapability of withstanding frost. Feeding with stimulants too late in the season, premature removal of stems and foliage, mulching with moisture-holding and air-excluding litter, neglect of lifting, dividing and replanting at reasonable periods, transplanting fleshy-rooted subjects in late autumn, defective drainage, permitting a smothering overgrowth of aggressive neighbours, and removing the overgrowth when "autumn cleaning" is in progress—all or any of these are possible causes of winter mortality among plants which would otherwise behave magnificently, even in severe winters.

Methods of protection may be, and frequently are, responsible for as much damage in one direction as their warmth can prevent in another, and it is beyond dispute that the crowns and root-stocks of many plants rot under coverings of ashes, manure and dense litter, all of which are still too commonly used to protect plants from frost. In a nursery far removed from the ameliorating influence of the sea, and fully exposed to the rigours of winter, large areas of Crinums, Amaryllis, Incarvilleas, Acanthuses, and even Arum Lilies, have for a number of years been annually protected by spreading on the ground rough Briars, trimmings of Thorn hedges, Gorse and Heather branches, thatching this rough material with straw, held down by old netting pegged around the edges to secure it in position. Thus, an effective top cover is combined with reasonable access of air to the surface soil. Prior to the adoption of this method a thick covering of straw litter was placed immediately on the ground, but saturation soon made the surface soil slimy, and practically the whole stock rotted before spring.

Pentstemons, Romneya Coulteri, Mutisia decurrens, Gazanias, and Phygelius capensis, are among plants that I have kept winter after winter by simply sticking branches of Yew, Spruce, Box, Ruscus or Laurel in the soil between and around the dwarfer plants, and tying loose sprays of the lighter of these and of Bracken among the branches of the taller subjects. Hydrangea hortensis has come safely through several winters with this simple precaution. It is only fair to mention that this has been in a garden where the soil is porous, stony, and resting on a subsoil of chalk, and there is little doubt that on such soils growth is of a harder texture, and becomes better ripened than on softer, or heavier, retentive soils. The latter, admittedly, produces more luxuriant growth and larger flowers, but what is lost in size on the harsher soil is first counterbalanced by particularly fine colour in the flowers, and subsequently by a tougher constitution.

Wherever a fat, rich soil is coupled with exposure to hard winter weather, it is prudent to be sparing with stimulating fertilisers in late summer and autumn, and it is as essential to have thought for the improvement of drainage and porosity of the soil as to attend to overhead protection. On various occasions I have left Dahlias, Salvia patens, Gladioli and Watsonias in the ground all the winter, and they have more than once been hard bound by frost before any covering had been placed on them. Each time this has happened I have, whilst the ground was still frozen hard, covered the beds with a thick layer of dry ashes. Thawing has thus been rendered a very slow process, and when, by thrusting a rod through the covering, I have found the ground soft, the ashes have been taken off, and loose brushwood used. No mortality has followed, but on one occasion where a few Dahlias were overlooked in a border facing south, the tubers were found to be in a soft, pulpy state almost immediately after a rapid thaw.

I expect there will be many deaths among Kniphofias, Gunneras, Dendromecon rigidum, Helianthus sparsifolius, Liatris, Meconopsis, Primulas, Rehmannia angulata, and in some gardens even among Coreopsis, Scabiosa caucasica, Funkias and other usually hardy plants, but the losses will quite probably be of old plants which have lost vigour and health, and there will be no substantial reason for concluding that the kinds they represent must henceforth be left out of our planting schemes. *M. R.*

RECENT WORK IN FRANCE ON THE PARASITIC CONTROL OF INSECTS.*

Introductory.

Within the past twenty years biological methods of control of injurious insects have been attempted in different parts of the world and have been applied almost exclusively to destructive species introduced to a country where previously they did not exist. Unfortunately, such introductions of animals or plants may prove extremely serious and cause irreparable damage, the introduced organism developing and increasing in a manner unknown in its native habitat. It has been shown that the cause of such an increase is due, not only, possibly, to more favourable climatic conditions, but chiefly to the absence, in the country into which an insect has found its way, of its natural enemies, parasites and predators, which in its native habitat keep it in check and maintain a harmless equilibrium.

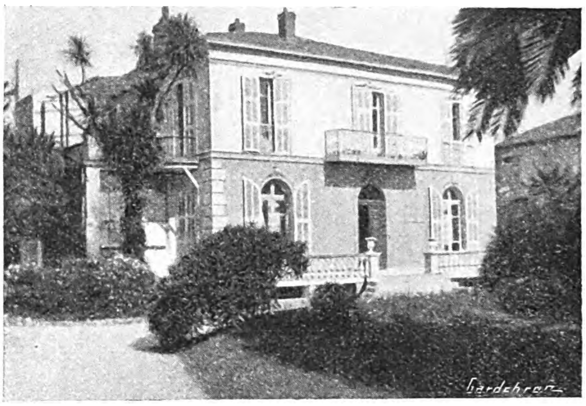


FIG. 21.—THE INSECTARIUM AT MENTONE.

The form of biological control to which, up to the present date, most attention has been given, consists in the introduction of parasitic and predaceous enemies in an attempt, not to exterminate the injurious insect, but to restore the balance prevailing in its home country. A second type of biological control, of which almost nothing is yet known, is the possible utilisation of the parasites of indigenous insect pests.

In Great Britain we have had little, if any, opportunity of understanding by actual observation and experience, the work involved in the practice of biological control. America, the Hawaiian Islands (*vide* Imms, 1926), and now, more recently, New Zealand, have been the pioneer countries in this method of dealing with injurious insects. This is almost to be expected. Our island situation and the comparative diminutive size of the home country make our entomological problems and consequently their method of attack, totally different from those in larger, newer and continental countries.

During a visit to entomological laboratories in France in 1925, the writer had an opportunity of observing the different kinds of work involved in biological control methods. Some account of these forms the subject of this article.

Study and Collection of Parasites and Predators of an Injurious Insect in its Home Country.

In the Eastern States of America, Maize or Indian Corn is severely attacked by a lepidopterous pest of European origin, Pyrausta nubilalis, the European Corn-borer. The caterpillar tunnels in the stems of the Corn causing extensive damage. Owing to its rapid spread throughout the States of New England, New York, Ohio, Michigan, and especially Ontario, the situation is viewed with some alarm. P. nubilalis occurs in central and southern Europe along with its parasites, which, however, are absent in the United States. The effect of the indigenous parasites in that country is almost negligible. The United States Bureau of Entomology are at present attempting to introduce from Europe the parasites of this insect. The work has been in progress since 1919, during which time seven species of parasites have been introduced and liberated in infested states. Dr. Imms, reporting on a visit to America in 1925, states that it is yet too soon to tell what results and what success have been forthcoming. It appears, however, that of the

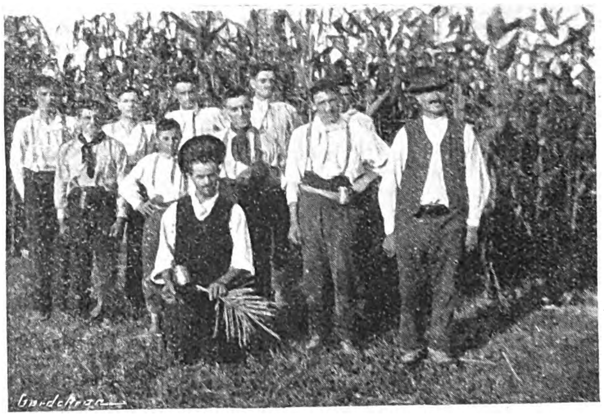


FIG. 22.—GROUP OF ITALIAN COLLECTORS OF PARASITES OF THE EUROPEAN CORN BORER, AT BERGAMO.

---

*Notes from a paper contributed to the Zoology Section of the British Association, Oxford, 1926, by Ronald C. Fisher, B.Sc., Ph. D.

seven species, three have, so far, been recovered from the field in sufficient numbers to indicate some hope of their successful colonisation.

The headquarters of the European activities are situated at Hyères, in Southern France, where the U.S. Bureau of Entomology have established a parasite laboratory, under the direction of Dr. W. R. Thompson, with his assistant, Dr. H. Parker. A thorough and detailed study of the European fauna has been, and is being, conducted at Hyères in order to obtain an accurate and complete understanding of the rôle played by the parasites in Europe. Before there can be any hope of forecasting with what success certain parasites may be transferred from one country to another, it is necessary that an exhaustive study be made over a period of years in the home country of the injurious insect. This is being done at Hyères. A study of the parasitic complex of the European Corn-borer has been made in certain selected districts, each typical of different climatic and other conditions. Thus, studies and collections have been made at Auch, near Toulouse; in the neighbourhood of Paris; in Belgium; in the Po Valley of Northern Italy; in Southern Italy; at Naples and district—all of which localities are within convenient reach of Hyères. Material is collected by field workers in each district and is sent to the laboratory at Hyères, together with full data. Drs. Thompson and Parker periodically visit the different localities and thus keep in close touch with their problem in the field.

As a result of the method of tackling this problem, not only have supplies of parasites been obtained for shipment to America, but also it has been possible to correlate differences in the parasitic fauna of the host, in different localities, with variations in climatic and ecological conditions. Dissections of larvae form a large part of the laboratory work necessary in studies of this kind; it is essential to be able to recognise instantly all the stages, if possible, of the larvae of all the parasites of the host, on dissection of larvae, pupae or eggs. This is no easy task, but it has been accomplished at Hyères for the parasites of the European Corn-borer, and it thus enables the workers to estimate the percentage of parasitism in each district, of all the species of parasites concerned and of the individual species.

The method of organisation of collection on a large scale of parasites for shipment to America is of great interest. The writer had the privilege of seeing this carried out at Bergamo, in Northern Italy, by Dr. Parker, in August, 1925. The collection was undertaken when P. nubilalis in this district was about to enter the pupal stage. The parasites collected were all gathered as cocoons or in parasitised pupae of the Corn-borer. The actual collection of pupae and cocoons was carried out by squads of Italian farm labourers (Fig. 22). Four different gangs were working in different regions around Bergamo, the districts having been selected by Dr. Parker after a thorough inspection of the conditions in this neighbourhood. Each evening, the day's collections were brought to the temporary laboratory situated in Dr. Parker's hotel, there to be sorted into the different species, placed in an ice chest and left until a sufficient quantity had been obtained to warrant a consignment being dispatched to America. The parasitised pupae were packed in small cardboard boxes, a number of which were placed in a specially made wooden box. Full data concerning the contents and locality from which they came were put in each set of boxes; the complete collection was conveyed to the boat in a portable cold-store bag, and at the port of departure was given in charge of the steward and placed in the vegetable chamber. Details of the consignment and the date of departure of the boat were then wired to its destination in America; thus the work in Europe was completed. Two consignments were sent from Bergamo after a period of collection of two to three weeks. Each year a similar collection is made in that district, while at other times material is dispatched from other localities.

The fate of the parasites, provided they survive the journey, and the success of the whole venture, depends, at least to some extent, on the treatment they receive in the country to which they are sent, there to be bred, and, in time, liberated in districts infested by their host insect, in this case, Pyrausta nubilalis.

Parasites of the Pear Leaf-Rolling Midge for New Zealand.

Another parasite problem which is at present being attempted from France, concerns the collection of parasites of the Pear leaf-rolling Midge, Perrisia pyri, a Cecidomyid fly, for introduction to New Zealand. It appears that there are two areas in New Zealand, in the neighbourhood of Auckland and Nelson, where this European insect has been causing grave concern, and from which it is spreading slowly but steadily. The New Zealand Government entomologist, Mr. D. Millar, is anxious to attempt biological control of this insect. By arrangement with Dr. G. A. K. Marshall, of the Imperial Bureau of Entomology, this work has been going on from France during the past two summers. Unfortunately, it has not been possible for a detailed study of the European parasites of this midge to be undertaken. At present, all that has been carried out is the collection of larvae of the Pear midge in the hope that parasites will be reared from these in New Zealand, bred there, and, in time, liberated in the districts where the host is so injurious in that country.

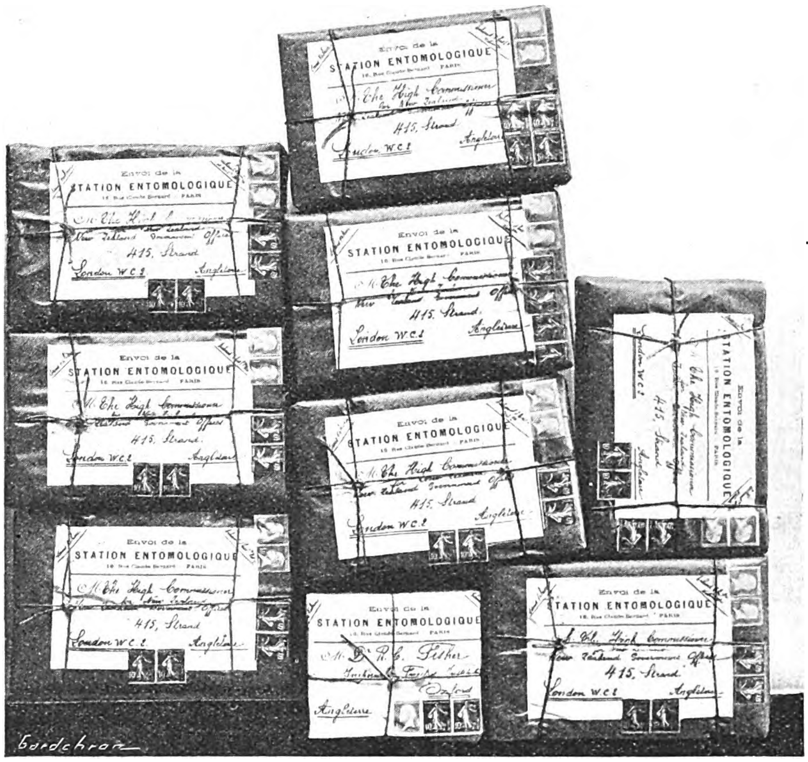


Photo M. Bru.

FIG. 23.—A CONSIGNMENT OF PARASITISED LARVAE OF PERRISIA PYRI, COLLECTED IN FRANCE FOR SHIPMENT TO NEW ZEALAND, AUGUST, 1926.

During the summer of 1925, the writer, in company with Mr. J. G. Myers, of the New Zealand Department of Agriculture Entomological Laboratory, undertook some investigations of the parasites of Perrisia pyri, in France. Studies were conducted in the extensive orchards of the École d'Horticulture at Versailles, through the kindness of the director, M. Pinelle. Numbers of larvae of the Pear leaf-rolling midge were collected and examined for parasites in the laboratory of Dr. Paul Marchal, in Paris. Three species of parasites were found, and it was decided that in accordance with the wish of the authorities in New Zealand, consignments of larvae be sent out to that country. This was done towards the end of August and again in the end of October, when the writer was sent to France in order to obtain what he could at that late time of year. Some success was achieved in New Zealand from the consignments sent out in 1925. An account of the parasites obtained and the experiments attempted with them in New Zealand is given by Mr. Millar (1926) in a recent number of the *N.Z. Journal of Agriculture*. During the present year, 1926, arrangements were made for consignments of larvae of the Pear leaf midge to be sent from Versailles and other districts in France throughout the months July-October. A visit was made to France in July to organise this work; M. Bru, préparateur at the Station Entomologique, at Paris, undertook the collection. Each month a consignment of larvae was sent at a given date, in time to be placed on board a boat leaving London for Wellington, New Zealand. Pear leaves containing larvae of Perrisia were packed in damp, sterilised, Sphagnum-moss, and placed in small wooden boxes. These (Fig. 23) were posted to the High Commissioner for New Zealand, in London, and, on arrival, were at once conveyed to the vegetable chamber of the boat sailing immediately for New Zealand.

Colonisation and Distribution of Introduced Parasites.

The French Ministry of Agriculture has established at Mentone a parasite laboratory for the study and rearing of parasitic and predaceous insects. This laboratory is an annexe of the Station Entomologique at Paris, the centre of the French Agricultural Entomological service, of which Dr. Paul Marchal is the Director.

In 1912, the cottony-cushion scale, Icerya purchasi, once the dreaded pest of the Orange groves of California, made its appearance on the Riviera. The remarkable and almost miraculously successful introduction and colonisation in California of the Australian lady bird-beetle, Novius cardinalis, is one of the outstanding examples of successful biological control. It is well-known that by the introduction of this Coccinellid beetle and by its activity in feeding upon Icerya, the Orange plantations of California were saved, and this scale insect no longer was regarded as a serious pest.

Conscious of the grave menace threatened by the presence of Icerya in France, Dr. Marchal (1913) immediately obtained supplies of Novius and attempted to establish it in the infested districts. Such was in reality the cause of the creation of an Insectarium at Mentone. It was not till 1917, however, owing to the war, that a laboratory was actually established (Fig. 21). At the present day one of the chief functions of this laboratory is to continue the distribution of colonies of Novius, sending them each summer, wherever the scale appears in numbers. Every now and then this insect appears in some hitherto uninfested area where colonisation has not been made. Supplies of this valuable beetle are reared in the Insectarium and are distributed to the required places, packed, as fully grown larvae or as pupae, in small-meshed wire cylinders. Each cylinder, sent through the post in a wooden box, contains also a small piece of Mimosa or other food plant on which are a few Icerya, to give support to the larvae during transit. On arrival at the infested area all that is done is to hang the cylinder on a tree situated well within the infestation, remove the cork at one of the ends, and colonisation proceeds of its own accord. Colonies of Novius are sent from Mentone to all parts of the Riviera, Italy, Spain, Algeria, Turkey and Switzerland.

Attempts have been made to introduce to southern France another Coccinellid beetle, Cryptolaemus Montrouzieri, to reduce the ravages caused by " mealy bugs " of the genera Pulvinaria, Pseudococcus, Dactylopius. Although Cryptolaemus has become established, at least, in certain localities, yet its successful acclimitisation cannot be compared to that of Novius (Poutiers, 1922).

All over France an extensive campaign is in progress to control the Apple Woolly Aphis, Eriosoma lanigera, by means of the Chalcid parasite—Aphelinus mali, introduced from America to many parts of the world. Dr. Marchal has established in his garden near Paris an insectary where Aphelinus is reared and from which it is distributed for colonisation throughout France. One understands that Mr. Fryer, Director of the Ministry of Agriculture's Pathological Laboratory at Harpenden, is at present investigating the possibility of establishing Aphelinus mali in this country for the biological control of the Woolly Aphis.

The results in France vary considerably in different districts. It seems probable that the climatic conditions of the district in which colonisation is attempted do not, in every case, favour the establishment and development of the parasite. In the south and in Italy, in the neighbourhood of Florence, one was given favourable reports on the success which has resulted from the introduction of Aphelinus. Further north, however, reports were much less convincing. At Chalette-Montargis, some little distance south of Paris, for example, while some success has been attained, yet in the opinion of M. Gaumont, of the entomological station in that town, a much more important and useful part has been played in that locality by the indigenous Coccinellid beetle, Exochomus quadripustulatus.

At Rouen, the director of the entomological laboratory, M. Regnier, stated that colonisation of Aphelinus mali had been attempted repeatedly in Normandy. At first very confident of success, M. Regnier (1924) has been compelled to modify his hopes. Almost invariably, Aphelinus has emerged in spring before the Woolly Aphis was sufficiently advanced to provide the food necessary for the parasite to continue its reproduction; consequently, many adults perished, and in order to maintain the parasites in the district, re-introduction was necessary. The value of Aphelinus in Normandy is still uncertain. This is of particular interest to us since the climatic conditions in this part of France approximate closely to those prevailing in southern and south-western England.

It was with great interest that one heard recently from Dr. R. J. Tillyard, of his attempt at the Cawthron Institute, New Zealand, to cross adults of Aphelinus, sent by Dr. L. O. Howard from localities in America of entirely different climatic conditions. The object of this experiment was to obtain, if possible, a race of parasites which might adapt itself to the conditions in New Zealand. Dr. Tillyard has distinct hopes of success. The evidence from France, which shows markedly varying degrees of success in acclimatisation of Aphelinus in that country, indicates further that there, also, successful colonisation might be obtained more easily by careful selection of Aphelinus stock in its home country, and by the breeding of a particular race suitable to the conditions prevailing in the country or part of the country into which it is introduced.

A STUDY OF THE PARASITES OF INDIGENOUS INSECTS.

French workers have been undertaking for some time past, what is urgently needed in our own country: a study to determine the actual rôle played by parasites in the development, and history, from year to year, of insect pests which have long been with them and which, periodically, if not annually, cause severe loss to agriculture, horticulture and forestry. One could mention as examples of this type of work the studies of Picard (1922) at Montpelier, and of Faure (1926) at Lyons. Similar studies are in progress at present at Paris and at Rouen on other indigenous insect pests, *e.g.*, the Hyponomeutid moths of fruit trees.

One cannot urge too strongly the value and importance of a detailed study of the ecology of the more important injurious insects in our own country. One of the first things to be done is the making of a general parasite survey throughout the country. The following few headings under which such work might be undertaken may be of interest as showing the extensive field of observations such work must necessarily cover.

I. Distribution of the host insect (injurious species concerned). Its economic importance;

II. Collection and examination of metereological data in each district, over a period of years.

III. Examination in each district of the entire biological complex of host and parasite, comparing differences in parasitic fauna in different districts, and attempting to correlate such with climatic or ecological variations.

IV. Determination of the rôle played by the parasites, collectively and individually, in periodic fluctuations, if any, of the host or hosts.

V. Life-history and description of all stages of all parasites concerned.

Such a programme entails an enormous amount of work, but there is no doubt as to the invaluable information it would yield. One would arrive at some real understanding of the conditions governing the development and distribution, in our own country, of such injurious insects as the Winter Moths—Cheimatobia brumata, and Hybernia defoliaria; or the different Tortrix moths, T. buoliana of the Pines, or T. viridana of the Oaks. It is not improbable that such information would indicate the lines along which preventive and control measures would most successfully be developed in the future.

The field for parasite investigation is vast, and in this country has scarcely yet been touched. One hopes that within the next few years entomological research in Britain will develop along those as yet unexplored paths. The insect problems of agriculture, horticulture, forestry and commerce, can be dealt with successfully, and untold losses prevented, when a thorough and complete knowledge has been obtained not only of the life-history of the injurious species, but also of its relationship to its surroundings and to its associated insects, in short, its ecology.

REFERENCES.

Faure, J. C. (1926).—Contribution à l'étude d'un complexe biologique; la Pieride du chou (Pieris brassicae, L.) et ses parasites hymenoptères. *Lyon Faculté des Sciences de l'Université.* This paper includes an extensive bibliography.

Imms, A. D. (1926).—The Biological Control of Insect Pests and Injurious Plants in the Hawaiian Islands. *Ann. App. Biol.*—XIII, No. 3.

Marchal, P. (1913).—" L'Icerya purchasi en France et l'acclimatation de son ennemi d'origine australienne, le Novius cardinalis." *Anns. des Epiphyties, Tôme premier.*

Millar, D. (1926).—" Parasites of the Pear Midge, First Attempt at their Establishment in New Zealand." *N.Z., Jl. Agr.*, vol. XXXII, No. 6.

Picard, F. (1922).—" Contribution a l'Etude des Parasites de Pieris brassicae, L. *Bull. Biol. de la France et de la Belgique*, T. LVI, fasc. 1.

Poutiers, R. (1922).—L'Acclimatation de Cryptolaemus Montrouzieri, Muls, dans le Midi de la France. *Anns. des Epiphyties, Tome* VIII.

Regnier, R. (1924).—" De l'Acclimatation en Normandie de L'Aphelinus mali, parasite du Puceron lanigère et de la Portée de cette Acclimatation." *Extrait du Bull. de l'Assoc. Francaise Pomologique;* published as a brochure by Typographie et Lithographie Geo. Supot, 5, Place d'Armes, Alencon.

RARE GARDEN WORMS.

THE worms which one normally encounters in the garden are all native species and are usually widely distributed. There are, however, certain other species to be met with from time to time which are at first somewhat perplexing. Indeed, in the case of several forms, the problems are deep and fascinating. We may divide these worms into two groups. There are, firstly, those which are clearly not indigenous, and must therefore have been introduced in some way or other; and then, secondly, there are a number which might easily be indigenous, because they belong to genera which are regularly represented in these islands, but yet are rare; and instead of being generally distributed in all kinds of gardens are only to be met with in a limited number. As the gardens in which these occur are often widely separated, and are usually of a special character, one is led to suppose that their denizens in such cases may frequently be importations which make no attempt at colonization or conquest.

It is with these latter that the present paper is concerned, and the questions on which we are seeking light are simple and yet important ones. Are these less common forms indigenous or imported? If indigenous, why are they so narrowly distributed, and why do they not wander into other fields? If imported, how is it that they usually seem quite at home, and continue to thrive from generation to generation, as in some instances, at least, we know they do by observations extending over a lengthy period? More perplexing is the problem why we find in our English gardens a number of worms which, while they seem to be foreign, have never yet been found in other parts of the world!

Let us take as our first illustration the worm known as Sparganophilus. The genus was first created by Benham, and was based on specimens found among the roots of the Bur Reed (Sparganium), at Goring-on-Thames, in 1892. Since that time quite a number of new species have been found in America and elsewhere, but so far as I am aware, this species (S. tamesis, Ben.) is unrecorded for any other habitat. When in 1910 I received from Mr. Bartlett, of Pencarrow, in Cornwall, a number of long, wiry worms found by him in a Lily tank, breeding freely, and evidently quite at home, it was impossible to find any record of its occurrence elsewhere. I therefore named it eventually Sparganophilus elongatus, and the types which are now in the British Museum remain unique. How are these facts to be explained? Is Sparganophilus originally a native, say, of America, introduced like a certain water weed into this country? If so, why has not the species been found elsewhere? But if it is a native how can we account for the two species remaining undiscovered outside these two localities ? Though they might easily be indigenous, it is a curious fact that the only other representative of the family found in this country (Anagaster fontinalis, Friend) is a water worm found by me in 1907, in a well at Mildenhall, Suffolk.

It is the common genus Allolobophora, however, which presents us with the greatest variety of problems. This genus is now divided into a number of sub-genera, and in dealing with the different forms I shall employ the sub-generic title without reference to Allolobophora, in order to avoid confusion. There is one form, however (Eisenia veneta, Rosa), which is so polymorphic, and has so many varieties in the British Isles, that I must reserve it for special treatment later. Let us examine one or two typical cases of rare garden worms concerning which it is at present impossible to say whether they are or are not indigenous. There is, for example, the interesting case of the worm which for the present I regard as Dendrobaena submontana, Vejd. If it is an importation it nevertheless breeds freely both at Cambridge and at Kew, but outside these two localities is at present known nowhere else in the British Isles.

More widely distributed is the Mottled Worm (Helodrilus ictericus, Sav.) which I recorded in 1905 as occurring in the old Physic Garden at Chelsea. Later I found it in the Botanical Gardens at Cambridge. It has not been found, to my knowledge, elsewhere in Great Britain, and seems, therefore, to be an importation, since it is known to occur in Italy, France and Switzerland. Another curious illustration of our subject is unique, inasmuch as the specimen (Octolasium intermedium, Friend) found by me in 1909 at Oxford, does not seem to be known anywhere else in the world. It might be a foreigner, but if so, where is its home ? It might equally well be a native, seeing that the genus is represented by two or three well-known and widely distributed species. But if a native, why is it never found elsewhere under similar conditions ? I have examined tens of thousand of specimens of earthworms during upwards of five-and-thirty years in every part of the country, as well as abroad, but have never met with this species in any other locality.

Then there is Allolobophora similis, Friend, which was so named on account of its resemblance to the well-known Green Worm (A. chlorotica), which is found in every part of the country by ditches and pools, and wherever cattle puddle. The two related forms are clearly distinct. They differ in the position of the girdle and in the segments which carry the so-called tubercula pubertatis. The male pores, moreover, which are on prominent papillae in the native Green Worm are scarcely distinguishable in the allied and strangely rare form, which I found in Kew Gardens, May 3, 1910.

In 1913, while collecting at Blenheim, I found some specimens of a worm which I have never seen elsewhere, and referred them to Michaelsen's Helodrilus antipae. I also found in Dublin the same year a specimen which seems to agree perfectly with the Norwegian worm (A. norvegica) of Eisen. Then there is, the case of the Luminous Worm (Microscolex) and the large earthworm found in Ireland, but never collected in England, though it occurs in the Pyrenees and other places in Europe. Beddard thus refers to the matter in his *Zoogeography*, published in 1895. Since that time, however, many new facts have been brought to light.—" The Rev. H. Friend reports (*Ir. Nat.*, Feb., 1894) the presence of a species of Lumbricus (L. papillosus) in Ireland, which has not yet been found elsewhere, and Mr. Benham's peculiar new genus, Sparganophilus found in the Thames is, so far as we know, limited to that river. There are one or two other examples of Oligochaeta which have not been met with outside the British Isles."

If the smaller worms were included, the list could be considerably extended. It is greatly to be regretted that the garden worms to be found in such places as Chatsworth, Madresfield, Trentham, Holkham, Compton Wynyates or Windsor have never yet been investigated, and I should be glad to have the privilege of reporting on careful collections from such old-time gardens. Specimens placed alive in tin boxes lightly filled with moss travel well by post, and should be sent to " Cathay," Solihull, Warwickshire. *Hilderic Friend.*

FRUIT REGISTER.

APPLE HOARY MORNING.

Whilst there are many culinary Apples of much better quality than Hoary Morning (see Fig. 24), no variety is more beautiful in appearance, for broken stripes of bright crimson cover the skin, sometimes, as in the specimen illustrated, over the whole surface. It is a very old Apple and may be found in many orchards in the west of England. The tree makes moderate growth and may usually be relied upon to fruit freely. The fruits are in season from October to December. Although the origin is not known, Bunyard, in *A Handbook of Fruits*, states that it probably originated in Somersetshire. It is known also as Dainty Apple, Downy, Sam Rawlings and New Margil.

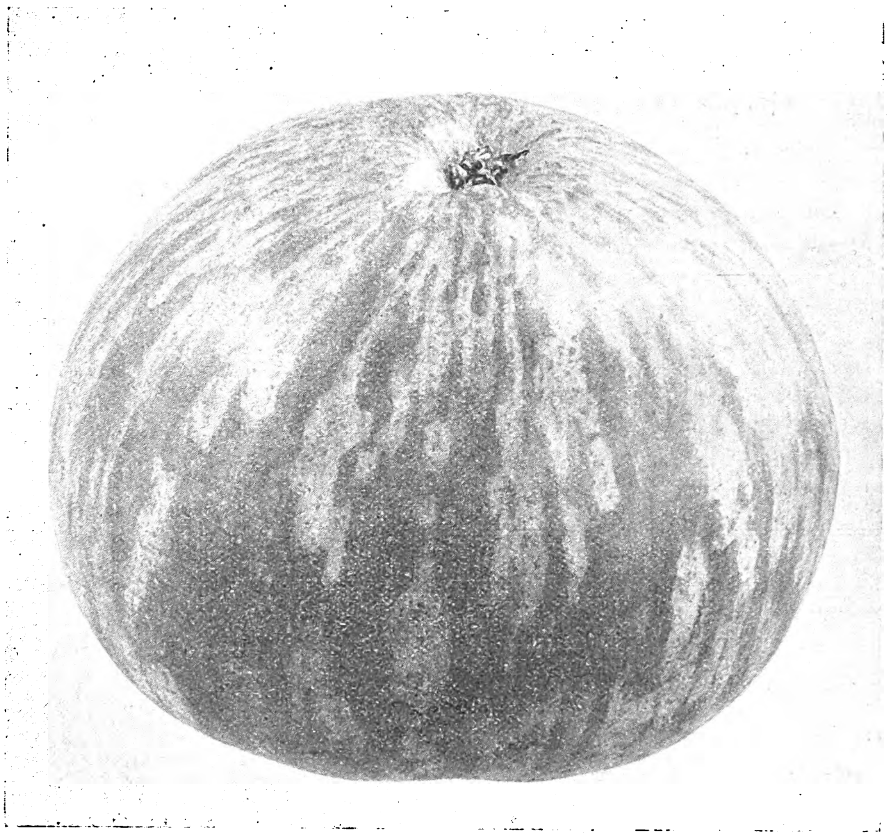


FIG. 24.—APPLE HOARY MORNING.

The illustration in Fig. 24 represents a fruit of natural size, and shows the very characteristic crimson markings and regular contour of the fruit ; it was brought to the meeting of the Royal Horticultural Society on October 12, 1926, and those who saw it considered it to be one of the most perfect samples of its kind.

Hoary Morning is one of the old fruits for which many have a great affection, apart from any considerations of quality, and it would be a pity if these old favourites were allowed to die out. Like Catshead, Tom Putt and Joaneting, which Kentish folk always call Jenneting, these Apples of former days have a sentimental value to older folk, which the younger will also appreciate as the years pass by.

BIENNIAL CROPPING OF APPLES.

In *The Gardeners' Chronicle*, of December 18, 1926, p. 496, Mr. Grigor Roy definitely disagrees with the theory that the Apple has a natural tendency to crop biennially, and he supports his argument by admitting that " if biennial cropping once becomes a habit it is very difficult to check even with drastic thinning." He has also observed that Apple blossom is often infertile on trees which have produced a bumper crop the previous year.

Both these statements seem to suggest that the biennial cropping habit is entirely natural, and that Mr. Grigor Roy's argument supports the very theory to which he so strongly objects. He seeks—by the artificial device of thinning—to correct this biennial cropping habit, and claims that young trees, if thinned every year, bear good crops annually.

Market Grower (*Gard. Chron.*, May 29, 1926, p. 381) states, under the heading " Biennial Fruiting of Apples," that " it has been proved that thinning the fruit is no remedy."

Many growers seem to think that thinning the crop will reduce the weight of the yield and thereby lessen the strain on the tree. Judicious thinning does not reduce the weight of the crop ; it only reduces the numbers of fruits, and as a result we have the maximum weight of crop the tree is able to produce, but of large, well-formed, Apples, instead of, possibly, the same weight of crop, made up of small specimens.

It would appear, therefore, that, since the tree will produce its maximum weight of fruit, whether thinned or not, the same amount of energy is expended in crop production and that thinning does not conserve this energy for the following year's crop.

Market Grower suggests in his article, quoted above, that some method of manuring and pruning might be adopted as a means of correcting this biennial-bearing habit, and adds that this is, " however, a matter for research stations."

This leads us up to the question, Does the Apple acquire a natural tendency to crop biennially? as suggested by Mr. J. Wilson in the issue of December 4, 1926, p. 455. The theory is, I believe, recognised by research workers and growers alike. Mr. N. H. Grubb, writing on the "Objects and Methods of Pruning" (*E. M. Report*, 1925), gives as one of a number of objects: "to check and possibly help to control biennial bearing by equalising the strain of the tree."

The leading article on page 1, *Gard. Chron.*, June 3, 1926, dealing with the experimental work on the manuring of fruit trees at Long Ashton Research Station contains this sentence: "Valuable results are no doubt to be obtained from orchard trials on known varieties so designed as to discover the manurial treatment which leads to the highest and most consistent yields, keeping 'annual' croppers at a high and steady yield and converting 'biennial' croppers, into annual bearers."

It must be assumed then, that biennial cropping is definitely recognised by both Long Ashton and East Malling Research Stations, therefore one would naturally hesitate to suggest that the biennial cropping theory is a fallacy but before accepting this theory as fact, it may be desirable to examine the evidence in favour of another cause.

"What effect a superabundance of blossom has upon the fruit crops it is hard to say, although many experienced growers contend that only when flowers are vigorous do they set fruits, and that when trees are crowded with blossom the individual flowers lack vitality. Yet this cannot be the sole cause for the deficiency, for such kinds of fruits as blossomed before the late frosts occurred are cropping fairly satisfactorily, whereas the later-flowering ones have no crops worth mentioning. Unfortunately the Apple crop, which is the most important of all, is the most unsatisfactory, and the reason is not far to seek, and may be summed up in the two words—the weather." This quotation from *Gard. Chron*, August 7, 1926, p. 101, suggests that the real cause of the failure of the Apple crop is directly due to unfavourable climatic conditions during the critical stage of blossoming, and this has the support of many successful gardeners, as a study of the reports on the hardy fruit crops, published in this journal, will show.

The following passages will serve to illustrate this:—

Mr. D. Buchanan, for Scotland, W.: "Fruit trees and bushes gave every prospect of a good crop until the middle of May when we had 5° and 7° of frost, and which caused great disappointment, especially in regard to the Apple and Pear."

Mr. J. A. Woods, writing from Durham, states: "All fruit trees gave promise of heavy crops, as they were smothered with blossom, particularly Apples, but the cold winds and several sharp frosts in May dashed all our hopes to the ground."

Mr. J. Winder, reporting from Northumberland, wrote: "Owing to the cold, sunless spring and keen frost, the fruit crops are a dismal failure."

Examples of this kind could be continued but these are sufficient to indicate what experienced practical growers think as to the causes of the Apple crop failure in 1926, and one cannot fail to be impressed by the reasons advanced.

Reference may be made to the Warwickshire County Council *Ann. Rep.*, 1925, on "Fruit Plots." On page 9 appears an instructive table of Apple cropping from 1906 to 1924, inclusive.

I append a selection of six well-known varieties from this table, showing the relative crops obtained during the past ten years, 1915 to 1924, inclusive.

I have chosen these varieties from many others included in the official report, irrespective of their cropping behaviour, and a close study of this table may provide sufficient proof for those whose minds are prepared to accept the theory of biennial cropping that here they have ample evidence to strengthen their belief.

On the other hand, those who are inclined to favour the idea that the cause of failure lies in other directions may also find evidence to support their belief.

The lack of definite evidence and the uncertainty of the Apple crop would lead one to suggest that the word "irregular" be substituted for the word "biennial." *William J. Moyse, Assist., Hort. Dept., County of Southampton.*

	Allington Pippin.	Bramley's Seedling.	Cox's Orange Pippin.	Lane's Prince Albert.	Newton Wonder.	Beauty of Bath.
1915	Very heavy	Heavy	Heavy	Very Heavy	Heavy	Heavy
1916	Light	Light	Light	Good	Heavy	Light
1917	Heavy	Heavy	Very light	Very heavy	Heavy	Good
1918	Good	Good	Light	Very light	Light	Light
1919	Heavy	Heavy	Good	Very heavy	Heavy	Heavy
1920	Very light	Very light	Very light	Very light	Light	Very light
1921	Good	Very heavy	Good	Very heavy	Very heavy	Heavy
1922	Light	Heavy	Very heavy	Light	Light	Light
1923	Heavy	Good	Good	Very heavy	Very heavy	Light
1924	Good	Good	Very light	Good	Light	Good

VEGETABLE GARDEN.

VARIETIES OF VEGETABLES.

IN the selection of varieties of vegetables, the same caution is required as in the choice of any other subject for cultivation in the garden. The trade catalogues always include a number of novelties, yet old favourites, long tried and seldom found wanting, should be depended on chiefly. To choose novelties is, perhaps, a less perplexing task than to determine which of the old-established ones to grow, for of these last there are, in a great many of the classes, far too many, and a reduction of the lists is desirable. Do we need one hundred sorts of Peas, or fifty sorts of Onions, or a similar number of Lettuces or Cabbages, or thirty sorts of kidney Beans or Broad Beans? On the surface, it would appear quite easy to eliminate inferior kinds, but it is obvious that they are retained in cultivation because the public, much more than the seedsmen, favours them, for it doubtless appears to the latter a matter of business prudence to comply with current demands, and hence they continue to grow stocks of sorts they know to be comparatively worthless because a certain number of their clients will be sure to purchase them. It cannot be doubted, however, that the seedsmen might contribute in an eminent degree to the elimination from their catalogues of inferior varieties, for every trade can exercise an influence on its supporters, and probably none more so than the seed merchants. Why should there be any delicacy in saying plainly that "such and such a variety can be supplied, but not coming up to present-day needs, cannot be recommended"? Such a proceeding would crush the demand for inferior sorts, to the advantage of all parties. The cultivator would ensure a higher order of production, and the trade in seeds would be considerably simplified.

In the choice of novelties the purchaser necessarily engages in a speculation. The reputation of the house that introduces the novelty is usually a sufficient indication of its relative merit and, as a matter of fact, a seedsman must have some fame as an introducer of new varieties to ensure an immediate sale for them. But it is fair to ask where we should be if the public had persistently refused to encourage raisers and vendors of new vegetables? We should certainly have obtained very few of the many superb varieties we now possess, for commercial encouragements have played their part in aiding the production and distribution of improved varieties quite as much as horticultural enthusiasm. The disappointments are, all things considered, relatively few compared with the successes. The newest varieties are, of necessity, the dearest, but amongst the established sorts there are plenty of good things, and it will be found, as a rule that the best of these have been introduced in comparatively recent times. There is no excuse whatever for the retention of an inferior variety in any class of any garden list.

It is a common mistake of inexperienced people to consider size as the most important of all qualities, alike in flowers, fruits and vegetables. Within certain limits, size is undoubtedly of importance, but the moment we favour size at the expense of flavour or succulence in vegetables we encourage retrogression, and voluntarily surrender some of the greatest advantages that have been secured by painstaking cross-breeding and discriminate selection. One can admire gigantic Rhubarb and Celery, colossal Cabbages and Beetroot, but they may be remarkable only for their coarseness, and every grower knows well that the largest Onions are the worst keepers. Good flavour, tenderness and beauty of appearance, are three most important qualities, and should be sought in preference to size, although, as already remarked, when certain limitations are recognised, every advance in the size of any particular vegetable is an advantage, in that it increases its productive capacity. In the light of modern research also the resistance of a variety to disease is an all important factor, and this is a quality in which novelties may not have been sufficiently tested. It is not an easy matter to ascertain from a catalogue the relative popularity of the various sorts of garden seeds: a peep into the seedsmen's books might tell us this, but it would be no sure guide to selection, for many inferior varieties are constantly in demand. If the public taste on this point is in need of education, will the seedsmen undertake to enlighten them as suggested above, and thus bring nearer the day when worthless garden varieties shall become truly obsolete? *W. Auton.*

HOME CORRESPONDENCE.

Cordyline australis fruiting in Scotland.—An interesting sequel falls to be recorded to the flowering of C. australis so freely this season (see *Gard. Chron.*, vol. LXXX, pp. 27 and 29), and while perhaps not unusual further south, is certainly noteworthy in Scotland. The great panicles of flowers have, in many cases, set seeds freely, and the small berries containing these seeds are clustered so thickly as to give the impression that the plants are once more in flower, when viewed from a distance. Some branches or panicles of these small fruits are white, while others have a distinct pale blue shade, and it is interesting to note that in nearly all cases the white ones have been attacked, if not devoured by birds, while the blue ones have been left by the birds, so far, alone. Several garden-truck loads of these have now been removed, and only a few of the best left to demonstrate their usefulness from a decorative point of view during the winter. It will be interesting to watch during the next season or two whether any of these seeds will germinate in any quantity, as, so far, only one tiny seedling was found during 1926, and it is doubtful whether it was a home-grown one, or the result of mice or birds carrying off seeds sown under glass. *A. T. Harrison, Culzean Castle Gardens, Ayrshire.*

SOCIETIES.

ROYAL SCOTTISH ARBORICULTURAL.

ABERDEEN BRANCH.

THE annual meeting of this branch was held on Saturday, December 18. There was a representative attendance, and Mr. John Michie, M.V.O., Kincairn, near Aberdeen, the President, occupied the chair.

The most interesting feature of the proceedings was an address by Dr. A. W. Borthwick, D.Sc., F.R.S.E., the first occupant of the new chair of Forestry at Aberdeen University, who took for his subject, "Tree Frontiers."

Mr. G. D. Massie, advocate, Aberdeen, Secretary and Treasurer, read the annual report—the twenty-first of the branch—which stated that the membership was now 167. The office-bearers were appointed as follows: Mr. John Michie was re-elected President; the retiring Vice-Presidents re-elected were Lord Forbes, Castle Forbes; Mr. S. T. Gammell of Countesswells; Major R. J. Nichol of Ballogie, and Mr. Donald Munro, O.B.E., Banchory. The following retiring members of the Committee were also re-elected: Lord Glentanar, Aboyne; Mr. John Rule, Huntly; Mr. Alex. Robson, Aberdeen; and Mr. Edwin Duthie, Aberdeen. Mr. Massie was re-elected Secretary and Treasurer.

The President intimated that a special committee recommended that the attainment of the majority of the Branch, which would take place on May 18, should be marked by a meeting, to be held that day, to which representatives of kindred societies would be invited, and at which Mr. C. S. France would give a paper reminiscent of the work of their branch since its inception. The company would dine together. The suggestions were cordially approved.

Professor Borthwick was then called upon to deliver his address on the subject of "Tree Frontiers." He opened by saying that the absence of many of the American-Asiatic Conifers in Europe was due more to physical and accidental causes than to natural limitation of the frontier, and when they introduced certain species, they might be merely reinstating the descendants of originally indigenous species. However, that did not mean that an exotic species might be cultivated anywhere and everywhere in Great Britain, although this country was within the range of its climatic limits. In Britain they had a wealth of introduced Conifers and other trees. They might take it for granted that the primary object was the introduction of exotic trees for ornamental and arboricultural purposes. Hence they found the majority of those newer Conifers confined to parks, policies, gardens and pleasure grounds. In course of time, encouraged by the fine growth which certain of these trees showed and reports of their enormous yields of timber in their native countries, foresters were induced to try them in plantations as timber trees.

Some of these experiments were successful, some were failures. In spite of the undoubted success which had attended the cultivation of the newer exotic trees under forest conditions here, they must not be carried away by enthusiasm and forget their older and well-tried friends—the native Scots Pine, the Norway Spruce and the Larch, the latter two of which had been grown sufficiently long in Britain as to be now regarded as almost indigenous.

The reasons which induced foresters to look for new trees were easily summed up. An exotic was worthy of cultivation in their forests if it was of a species at present unrepresented, and was capable of producing timber of utility, or if it possessed advantages in rate of growth, and was not exacting as regards soil and climate; if it yielded useful timber and was more resistent to indigenous enemies, such as fungi, insects and animals, than those at present in cultivation; if it possessed better qualities as a shelter and nurse tree than those at present grown—that was, if it offered silvicultural advantages to other species by association with them. Size alone was no criterion, because size, to a large extent, depended upon age. No doubt, given suitable soil, site and protection, they might, with time, reproduce the giants of the Californian and British Columbian forests in this country, but there was an economic limit to the length of rotation they could afford in their cultivated forests. Therefore, the qualities he had mentioned should be their guide in selecting new trees.

Coming to the questions of how they could ascertain if new species possessed these qualities, Dr. Borthwick said there were two methods open to them. The first was the one adopted in the past; that was trial and error, but this was a long, haphazard and costly method. The other method was quicker, less costly and more reliable—that was, a study of the tree within its natural frontiers, in order to gain information as to the kind of environment and growth factors to which it was suited, because "the plants of any region are the exponents of its climate." If they found trees of ecomonic utility in regions where the growth factors were similar to their own, they had good reason to suppose they would thrive with them.

The next step was to plant these trees along with, or under, similar conditions to those which were native, in order that a fair and exact comparison might be made. But no matter which method they adopted, final and conclusive evidence could not be forthcoming until these trees had completed a full rotation. Then, and not till then, were they in possession of all the facts necessary for a complete knowledge of the species under trial. While they had gained new and commercially valuable species by trial and error, they had meantine hopelessly lost others through carelessness with regard to diseases—he referred to the Silver Fir and White Pine. And they came dangerously near losing the Larch, through at first planting it anywhere and everywhere outside its natural frontiers. In all cases where trees were artificially cultivated outside their natural habitats, they could not be too vigilant. A trifling change in one single growth factor might determine success or failure.

Until they had carefully studied and examined every detail of environment in regard to the ecological requirements of each species of tree, they had not got at the bottom of its distribution. Who knew but that certain species, which trial and error had condemned as useless, might not yet prove to be of value if given the right environment and treatment? And it was not beyond the bounds of possibility that they might obtain even better results than they got at present with the more promising species, such as Douglas Fir and Sitka Spruce. The more complete their knowledge of their life processes and the reaction to environment became, so would their methods of selection and treatment improve.

A point of the highest importance in dealing with exotic trees was the province or locality from which seeds or seedlings were obtained. He pointed out that different forms or types existed within the species, and that, the more widely extended the geographical range of a species, the more it was liable to exhibit constitutional differences which were expressed in variation in response to environment. They must not forget that most trees were dual organisms. They possessed mycorrhiza, and if the seeds alone were introduced, the appropriate comensal partner might be left behind. An analogous phenomenon may be seen when new nursery ground was being broken in for seedling tree production. Such ground did not attain its full yield capacity until the appropriate mycorrhizal organisms had become established.

The President opened an interesting discussion which followed Dr. Borthwick's address.

GARDENING APPOINTMENT.

Mr. F. Jackson, late gardener to T. ROWBOTHAM, Esq., Gilbertstone, South Yardley, Birmingham, and previously gardener to Maj.-Gen. Sir OLIVER NUGENT FARREN, Connell Mount, Nugent, Co. Cavan, Ireland, as gardener to G. HANNEFORD, Esq., Dainsu, Brancester, Kings Lynn, Norfolk. (Thanks for 2/- for R.G.O.F. Box.—EDS.)

Obituary.

Thomas Coomber.—It is our sad duty to record the death of a very old friend and one of the oldest contributors to *The Gardeners' Chronicle*. Mr. T. Coomber passed away on December 23 last, and was laid to rest in the churchyard of Llangattock, near the scene of his great life work. For upwards of forty-seven years he was gardener at The Hendre, Monmouth, serving under the first and second Lords Llangattock and the Hon. Lady Shelley Rolls. As a young man, Mr. Coomber set out to become an efficient, practical gardener, and his special inclinations were toward the cultivation of fruits and a writer on gardening subjects. He was born at East Grinstead, but commenced his gardening career so far north as Crimonmogate, Aberdeenshire, where he was apprenticed, and remained for four-and-a-half years. Subsequently, he became journeyman at Knole Park, Sevenoaks, and also at Woburn Abbey, and afterwards was foreman at Pencarrow, Cornwall, and at Rendlesham Hall, in Suffolk. He left Rendlesham Hall to enter service with Messrs. James Veitch and Sons, at Chelsea, and, later, was recommended by that firm to take charge of the Hendre Gardens, where he became famous as a cultivator and was particularly successful at exhibitions of the Royal Horticultural Society, the Royal Botanic Society, and at Alexandra Palace, where he won numerous substantial prizes and gold and silver medals for fruits. His first exhibit was of Black Hamburgh Grapes, at one of the exhibitions at South Kensington, where he obtained second prize. For many years Mr. Coomber was regarded as the premier cultivator of Pineapples under glass, and it is of interest to observe that his splendid exhibit of twenty-six Queen Pineapples, shown at Holland House in 1913, for which he received a Gold Medal, were grown in a pit that contained only thirty plants. For many years Mr. Coomber was a member of the R.H.S. Fruit and Vegetable Committee, and in 1910 he was awarded the Victoria Medal of Honour in Horticulture, which was a fitting reward for his long and able services in the cause of horticulture. Mr. Coomber retired in 1921, and his portrait and an appreciation appeared in our issue of May 14 of that year. Mr. Coomber was a frequent and able contributor to the horticultural press, and his first engagement as a writer was to contribute the weekly articles on "Fruits under Glass," for *The Gardeners' Chronicle* of 1884. By his kindly manner and his desire to do all that lay in his power to forward the interest of promising young gardeners who came under his charge, Mr. Coomber endeared himself to a very wide circle of friends, all of whom will learn with great regret of the passing of this fine old gardener.

Edwin Hillier.—We regret to record the death of Mr. Edwin Hillier, Senr., of Kingston House, Winchester, one of the veterans of the trade, who passed peacefully away on December 24, 1926, in his eighty-ninth year. It is interesting to note that he started his career in the celebrated Syon House Gardens, Brentford, where many of the old school of gardeners and nurserymen of his day were trained, and at Messrs. Osborne's Old Nursery, Fulham. About sixty-two years ago, after his marriage, he settled in Winchester, and purchased the business of the late Mr. Farthing, which he quickly extended. Since his retirement, fifteen years ago, the business has been carried on by his two sons, Messrs. Edwin L. and Arthur R. Hillier, and has been developed into a large retail concern, covering almost all branches of horticulture. He leaves a widow, now in her ninety-third year, three sons and three daughters. The funeral took place at Winchester, on Tuesday, December 28, and was attended by representatives of all branches of the business, including Mr. Harry Rumbold, who has a record of fifty-five years' continuous faithful service, and other members of the staff, with from twenty-five to thirty-five years' association with the firm.

George McLean.—Widely known in horticultural circles in the Nottingham district, Mr. George McLean, late of Chilwell, died on December 28 last, at the residence of his son, Mr. A. McLean, of 39, Acton Road, Long Eaton. The late Mr. McLean was in his 78th year, and was a native of Glasgow. For many years he was gardener to the Earl of Lichfield at Shudborough Hall, and for over twelve years carried on business at the Wollaton Hall Gardens as market gardener. He excelled in fruit culture under glass, and had written numerous articles on the subject. He retired from active business over twelve years ago.

Louis Plumeré.—We regret to learn of the death, on November 29, of M. Louis Plumeré, the well-known horticulturist of Belfort, France, in his sixty-first year. The deceased, who was an officer of the Mérite Agricole, and held several official positions in horticultural organisations, exercised considerable influence in creating and extending the love of flowers in Belfort, and it was his great desire to see the inhabitants of the town, as in so many Alsatian and German towns and villages, decorate their balconies and windows with the beautiful blooms which are the admiration of so many foreign visitors where the custom is established. M. Plumeré had been ill for some time before his death, and suffered considerable pain. He leaves a widow and family to mourn his loss.

Matilda Smith, A.L.S.—Notwithstanding her splendid work on behalf of horticulture and botany, small recognition and few distinctions came to Miss Matilda Smith during her association of more than forty years with the Royal Gardens, Kew, and the various publications concerned therewith. All who have a working acquaintance with the *Botanical Magazine* will remember the familiar initials of " M. S.," which certified that the drawings were from her brush and pencil, but few will remember that her familiar signature first appeared so long ago as on Plate 6,386 of that great work, for which she executed something like 2,500 drawings. Under the advice and tuition of Sir Joseph Hooker, Miss Matilda Smith commenced her work as botanical artist about the year 1878, and succeeded the late Mr. W. H. Fitch in that work, but in addition to executing the drawings for the *Botanical Magazine*, she was the sole artist and lithographer for Hooker's *Icones Plantarum* from the year 1881 until her retirement; indeed, Mr. G. Bentham, under whose auspices this publication appeared, provided in his will not only for its continuation, but that Miss Smith should continue as artist so long as she chose so to act. For this work she executed over 3,000 drawings, the correctness of which has never been called into question. Other works to which she contributed drawings include the *Botany of the Challenger Expedition*; the *Flora of Socotra*; the *Botany of Afghanistan*; the *Flora Simlensis* and Cheeseman's *Illustrations of New Zealand Plants*. She also made a large series of drawings of new and interesting plants which flowered at Kew, and also made facsimile copies of plates that happened to be missing in any of the illustrated works in the Herbarium Library at Kew, so as to make the books practically complete. Miss Smith lived at Kew, took a keen interest in local affairs, and was Guardian of the Poor for the Kew Ward of the Borough of Richmond. In the social life of Kew she held an unique position and was loved and esteemed by all who knew her. In 1916 her fellow Kewites elected her as President of the Guild, and on the occasion of the annual meeting of that year held in the Psysic Gardens, Chelsea, she sprung a surprise on those present by graciously entertaining them to tea. Miss M. Smith's particularly useful life came to an end only a few days ago, and it is a matter of deep regret that the Royal Horticultural Society's award of a Silver Veitch Memorial Medal was so long deferred.

CATALOGUES RECEIVED.

WATKINS AND SIMPSON, LTD., 27, Drury Lane, W.C.2.
W. DRUMMOND AND SONS, LTD., Stirling.
AUSTIN AND MCASLAN, Glasgow.
DICKSON, BROWN AND TAIT, Manchester.
ALFRED DAWKINS, 408, King's Road, Chelsea, S.W.10

MARKETS.

COVENT GARDEN, Tuesday, January 4th, 1927.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	15 0–21 0
cuneatum, per doz. bun. ...	12 0–15 0
Asparagus plumosus per bun., long trails, 6's ...	2 6—3 6
med. sprays	1 6—2 6
short ...	0 9—1 3
—Sprengeri, bun. long sprays	2 0—2 6
med. ,,	1 6—2 0
short ,,	0 6—9 0
Bouvardia, white per doz. bun.	12 0–15 0
Camellias, 12's, 18's per box	3 6—4 0
Carnations per doz. blooms	5 0—7 0
Chrysanthemums, white, per doz.	5 0—8 0
—bronze ,, ...	6 0—8 0
—white, per doz. bun. ...	24 0–36 0
—bronze, per doz. bun. ...	24 0–36 0
—yellow, per doz. blooms ...	5 0—7 0
—yellow, per doz. bun. ...	30 0–36 0
—pink, per doz. blooms ...	5 0—7 0
—pink, per doz. bun. ...	30 0–36 0
—red, per doz. blooms ...	4 6—5 0
— red per doz. bun. ...	21 0–30 0
Croton leaves, per doz. ...	1 9—2 6
Daffodils, per doz. bun. ...	42 0–48 0
Fern, French, per doz. bun.	10 0–12 0
Freesia, white, per doz. bun.	5 0—6 0
French Flowers—	
—Acacia (Mimosa), per doz. bun.	15 0–16 0
—Ruscus, green, per pad ...	6 0—8 0
—Myrtle, green, per doz. bun.	1 6—2 0
—Narcissus, Paper White, per doz. bun.	5 0—6 0
—Violets, Parma, per bun. ...	7 0—9 0
Gardenias, 12's, 18's, per box	12 0–15 0

	s. d. s. d.
Heather, white, per doz. bun.	6 0—9 0
—pink, per doz. bun. ...	6 0—8 0
Honesty, per doz. bun. ...	15 0–18 0
Hyacinths, white, large, doz. bun., 3's	12 0–15 0
Lilac, white, per doz. stems ...	6 0—9 0
—mauve, per doz. sprays ...	8 0—9 0
Lilium longiflorum, long, per doz. ...	8 0—9 0
—speciosum rubrum, long, per doz. blooms ...	5 0—6 0
—short, doz. blooms ...	4 0—4 6
Lily-of-the-Valley, per doz. bun,	30 0–36 0
Marguerites, yellow, per doz. bun.	— —
Narcissus Soliel d'Or, per doz. bun.	12 0–18 0
Orchids, per doz.	
—Cattleyas ...	24 0–36 0
—Cypripediums per doz. blooms ...	6 0—8 0
Prunus triloba, per doz. sprays	3 6—4 6
Ranunculus—	
—double scarlet	12 0–15 0
—yellow ...	18 0–24 0
Richardias (Arums), per doz. blooms .	10 0–12 0
Roses, per doz. blooms—	
—Madame Abel Chatenay ...	6 0—7 0
—Molly Sharman Crawford	9 0–10 0
—Richmond ...	15 0–18 0
—Madame Butterfly	15 0–18 0
—Safrano, 24's, per packet ...	4 6—5 0
Smilax, per doz. trails ...	5 0—6 0
Tulips, per doz.	3 0—4 0
—single white	24 0–30 0
— —yellow ...	36 0–48 0
— —scarlet ...	24 0–30 0
— —pink ...	36 0–48 0
—terra-cotta, per doz. bun. ...	30 0–36 0
—mauve, per doz. bun.	48 0–60 0
Violets... ...	4 0—6 0

REMARKS.—Prices remain very firm in this department and supplies generally have been limited during the past week. Chrysanthemums are gradually lessing in quantity, more especially the coloured varieties. Bronze, pink and yellow blooms have advanced most in price since Christmas Eve, such as Amber Bronze, Mme. Charvet and December Pink, and Winton and Negoya yellow. Of white blooms Cheshunt White and Favourite are the best of the disbudded varieties. Of bunch Chrysanthemums Cheshunt White and Heston and Winter Cheer can only be recommended; a few bunches of Allmann's Yellow are obtainable at high prices. Daffodils and Tulips are increasing in quantity, and small consignments of Soleil d'Or are being received from Cornwall and the Channel Islands in good condition. The newest subjects in this department are Freesias and a few blooms of Iris tingitana. Cut Dutch-grown white Hyacinths in boxes are arriving in good condition. Roses, which realised 18/- to 24/- per dozen owing to the increased demand for the New Year festivities, have been reduced in price since Saturday. The quality of Richmond and Madame Butterfly is very fine. White and mauve Lilac is arriving from Holland in very fine condition, also Prunus triloba. Supplies from the south of France were below requirements last week, but better supplies are anticipated from now onwards. Anemones, Ranunculus, Marguerites and Acacia (Mimosa) have been checked by the severe weather conditions. White and yellow Narcissi and Violets were more plentiful this morning.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, Devon	7 6–10 0
— — Paris Green	9 0–10 0
Beans—	
—best	12 0–15 0
—ordinary ...	8 0–10 0
Beets, per cwt.	5 0—6 0
Belgian Chicory, per lb.	0 3—0 4
Cabbage, per doz.	2 0—2 6
Carrots, per ½-bag ...	4 0—5 0
Cauliflowers—	
—English, doz.	3 0—5 0
—St. Malo, crate	7 0–10 0

	s. d. s. d
Celery, fan ...	1 6—3 0
Cucumbers, per doz.	24 0–42 0
French Batavian	3 0—4 0
—Endive, per doz. ...	2 6—3 0
Lettuce round,, per doz. ...	3 0—5 0
Mint. forced, per doz. ...	10 0–15 0
Mushrooms	
—cups ...	2 6—3 0
—Broilers ...	2 0—2 3

	s. d. s. d.
Onions—	
Valencia ...	10 0–11 6
Parsnips, per cwt. ...	4 6—5 6
Potatos—	
—King Edward ton ...	...£9/10 £9/15
—others, ton	...£5/10 £7/10
Radishes, per doz.	2 6—3 0
Rhubarb, forced, per doz. ...	1 9—2 3

	s. d. s. d.
Savoys, per doz.	1 9—2 3
Seakale, per punnet ...	2 6—3 0
Sprouts, Brussels per ½-bag ...	2 0—4 6
Tomatos—	
—Canary Island	16 0–22 6
—English, pink new crop ...	6 0—8 0
—pink and white, new crop ...	6 0—8 0
Turnips, per cwt.	4 6—5 6

REMARKS.—Conditions ruling just now are certainly quiet, but not more so than is to be expected at this time of the year. The most active section is that handling the consignments of fruits from South Africa. The fruits of the latest shipment, consisting of Peaches, Plums, Apricots, and a few Strawberries, are in good condition and selling satisfactorily. Business in the Apple market is decidedly slow and will probably continue dull for a few days. Oranges are good and cheap—too cheap considering how good they are, and should be a better trade. English Apples are not plentiful, but only Bramley's Seedling and Cox's Orange Pippin are wanted; other sorts are feeling the competition with imported Apples. Hothouse Grapes are a good trade, and with Belgian produce on the short side, English Grapes are a firm trade. The sprinkling of Cucumbers coming to hand sell well, but are costly. Home-grown Tomatos are now practically finished for the season. Tomatos from the Canary Islands are a good trade. Salads are scarce and dear—Lettuce, Endive and Batavian Endive in particular, selling well. Belgian Chicory is, however, comparatively cheap. Forced vegetables, such as Aspargus, Beans and Potatos, are not plentiful and have made even higher prices than are at present ruling. The quantities of Mushrooms are inclined to be heavier and values are a little less stable than they have been for some time. Potatos are a firm market, good samples selling well.

GLASGOW.

Following the activity of Christmas week, business in the cut flower market was much quieter during the few remaining days of 1926. The Chrysanthemum season is rapidly waning, but these flowers are being substituted by Tulips, which are not yet very plentiful. Prices continued good, especially in the case of Roses, which were worth from 14/- to 18/- per dozen. Carnations at 6/- to 8/- were easier, while Narcissi made 1/- to 2/- per dozen for small bunches, and 3/- to 5/- for large. Montressor Tulips sold at 1/- to 1/3 for 6's; Thomas Moore, 1/- to 1/4; Le Matelas, 1/2 to 1/6; and William Copland, 1/9 to 2/6. Disbudded Chrysanthemums averaged 2/6, and sprays of Heston White, Chesham White and Baldock's Crimson made 10d. to 1/6 per bunch. Winter Cheer, 10d. to 1/9, and Wilcox, 1/- to 1/6. Lilac realised from 1/6 to 2/-. Hyacinths in pans found a ready sale, but some of the plants which were dwarf and almost stemless only realised 1/- each, while the prices for better specimens varied from 2/- to 4/-.

The feature of the fruit market was the keen competition for Valencia Oranges, the imports of which have been stopped owing to the frosted condition of the fruits. Counts of 300 advanced to 25/-; 360's, 19/- to 22/-; and 714's and ordinary 420's, 36/-. Jaffa Oranges, which will constitute the main source of supply during the next few weeks, were also dearer at 16/- to 17/- per case; prices for Mandarin 420's ranged from 10/6 to 16/- per half-case, and trays from 1/5 to 2/-. Apples, Pears, Lemons and Grape Fruits were quoted unchanged. The value of Teneriffe Tomatos ranged from 12/- to 25/- per bundle. The market was closed on Saturday.

ANSWERS TO CORRESPONDENTS.

CLUB ROOT IN CABBAGES.—*E. H. W.* To correct the tendency of your Cabbages to develop " Club Root," any form of lime is suitable, although quick-lime is the most rapid in action. Any form that may be obtained should, therefore, be used for the purpose. Thorough cultivation of the soil is essential to rid it of insect grubs, soot being a good deterrent. Many grubs that are found in the soil are innocuous, and some are even helpful.

MAGGOTS IN SOIL.—*B. B.* The maggots are fly larvae, living principally on the great amount of organic matter in the soil. They may have been breeding in the soil used for potting various plants. If the plants are potted, it will be difficult to kill the maggot without injuring their roots, therefore, wherever possible, use soil free from maggots. To clear infected soil, the most effective method is to use heat. Where this is impossible, one of the advertised soil fumigants should give good results. If a chemical soil disinfectant is used, some time must be allowed to elapse before the soil is used for potting purposes.

Communications Received—S. T. B.—R. U. B.—G. R.—T. E. W.—A. M.—A. J. S.—G. D.—F. C. L E. S.—T. P. S.—B. C.—C. G. A.

THE Gardeners' Chronicle

No. 2090.—SATURDAY, JANUARY 15, 1927.

CONTENTS.

Aerides and allied plants 46
Alpine garden—
  Adonia amurensis... 47
  Anemones of the Hepatica section 48
  Asperula Suberosa 47
  Scorpiurus sulcata... 48
Bog garden—
  Primula rosea ... 48
Books, notices of—
  Blumen im Hause... 53
  Le Chrysantheme... 53
  Potato Varieties ... 41
Brussels International Horticultural Exhibition 43
Cachrys laevigata ... 47
Cemetery art in Baden 43
Cyclamen rohlfsianum 48
Economic plants of the Bay Islands ... 50
Elm trees, importation of 43
Emulsified oils for the destruction of insect eggs 54
Florists' flowers—
  Chrysanthemums ... 48
Foreign correspondence 54
Fruit register—
  Apple Allington Pippin 55
  Apple Arthur Turner 55
  Apple Norfolk Beauty 55
  Pear Glou Morceau 55
"Gardeners' Chronicle" seventy-five years ago 43
Glasgow Flower Show 42
Hardy flower border—
  Double Primroses... 47
  Rudbeckia hirta ... 47
  Silene Asterias grandiflora ... 47
Harrow, Mr. R. L.... 42
Horticultural Club ... 42
Indoor Plants—
  Asystasia bella ... 46
  Crassula multicava 46
  Dipladenias ... 46
  Eriostemon buxifolius 46
  Hippeastrum reticulatum 46
"Kew Bulletin" ... 43
Light, the right of ... 49
Melon, a long-keeping 42
Mesembryanthemum 52
Oak a veteran ... 43
Obituary—
  Dresselhuys, H. C.... 57
  Faudel - Phillips, Sir Benjamin 57
  Millar, W. A. ... 57
  Petersen, F. ... 57
Paris Spring Show ... 41
Plants, North and Central American, in the Sloane Herbarium... 42
Richmond Hill ... 41
Societies—
  Royal Horticultural 56
Sugar-Beet in Yorkshire 42
Trees and shrubs—
  Coronilla glauca out-of-doors 51
  Eucryphia pinnatifolia 51
Ultra-violet light and horticulture ... 52
Vegetable garden—
  Common scab of Potatos 55
  Early Carrots in frames 55
Week's work, the ... 44
Wild garden—
  Epigaea repens ... 49

ILLUSTRATIONS.

Asperula suberosa 47
Asystasia bella 45
Conophytum Marlothii, 52; C. Meyeri... 53
Eucryphia pinnatifolia 51
Harrow, Mr. R. L., portrait of 42
Oak, an old, at Brocket Hall 43
Scorpiurus sulcata 49

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38·7°

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 12, 10 a.m. Bar. 29.9. Temp. 48°. Weather, Fine.

Potato Varieties, II.*

DR. SALAMAN'S book on the subject of Potato varieties, a first notice of which has already appeared in these columns (see p. 21), deals with thoroughness with the methods employed in raising new varieties. Of possible methods which might lead to the production of new varieties are tuber-selection, and self- and cross-fertilisation followed by tuber-selection. If, however, the definition of a variety which Dr. Salaman puts forward be adopted—as we think it should be—it follows that the selection of tubers of a given variety is likely to lead nowhere. For, according to that definition, all the tubers of a variety, arising as they do by vegetative propagation, are identical. Therefore, save for occasional mutations which might arise, selection from among the tubers can lead to nothing novel. Practical experience confirms the conclusion reached on theoretical grounds, for almost every variety of Potato which has been introduced into commerce has been raised, not as a result of tuber-selection, but from seeds produced either by self-pollenation of a given variety or by cross-pollenation carried out between two distinct varieties. When a given variety is self-fertilised it either gives rise (in relatively rare cases) to uniform offspring identical with the parent, or it yields offspring which are by no means identical. In the former case selection is powerless to produce anything new, but in the latter it is, of course, the method which may be applied with every certainty of its leading to the isolation of new varieties, though whether any of the latter turn out to be of economic value cannot, of course, be predicted; for in breeding and selection it is profoundly true that "many are called but few are chosen." The importance of a knowledge of the genetics of the Potato (that is the behaviour in inheritance of the series of characters which constitute the varietal characteristics) is self-evident. If, for example, it is known how skin colour, tuber shape, haulm character, eye character of tuber, colour of flesh and so on arise, then the breeder, who on the basis of this knowledge chooses plants for breeding with the object of combining in one of their descendants desirable characters which occur, some in the one and some in the other parent, will have a brighter prospect of success than if he chose two varieties haphazard. Take but one example: as Dr. Salaman points out, earliness is a recessive character, that is, an early crossed with a true-bred "late" Potato will give offsprings which are not early. Maincrop Potatos are sometimes pure for lateness, sometimes not. Therefore, if a breeder aims at producing a new early Potato, he must work either with existing earlies or cross an early with a late variety which experience has shown to be carrying the factors both for lateness and earliness. Again, genetical analysis has demonstrated that immunity from, and susceptibility to, wart disease are Mendelian characters, dependent, however, on more than one pair of Mendelian factors. Here again the way of the plant breeder is made easier. Nevertheless, it has to be admitted that even so, neither scientific nor other plant breeders have, as yet, been able to produce immune varieties which are in other respects equal to the best of the varieties which are susceptible. Yet in this quest, not yet brought to a successful issue, science has the last word, for it shows, or at all events supplies strong evidence for believing, that the production of immunes equal to the best susceptibles is not impossible. As to the varieties themselves, Dr. Salaman considers the various efforts which have been made to classify Potato varieties and finds them all bad; or, if not bad, at all events, of little value. He tackles this important question in another way, substituting for a strict classification a classified guide which he hopes will be useful in enabling any one to give a name to a Potato crop and to any rogue which may be growing therein. The scheme is based on flower and foliage character, and whilst admittedly imperfect, does, as it seems to us, fulfil its purpose. Those who would like to test it during the coming summer will find the Guide set out in full in Chapter VIII. Other subjects of importance with which Dr. Salaman deals are varietal differences in time of maturity of the crop, yield and the Mendelian factors which determine it, and the environmental influences which affect the crop. The last subject, which is treated with commendable fulness, comprises the consideration of many facts of the greatest interest to cultivators—provenance of seed (with respect to which he reaches the conclusion that a place which gives rise to good seed is primarily one in which mosaic diseases are relatively rare, or at all events, do not spread so rapidly into the tubers as they do in districts in which experience shows that it is inadvisable to save one's own seed), size of seed tuber, maturity of tuber, the use of cut tubers as sets, and the preliminary sprouting of tubers. Other subjects dealt with in later chapters are virus diseases, and synonyms, in connection with which all interested in Potato varieties should scan the formidable list of synonyms on pp. 140-162. Finally, in Chapter XXIV is given a description of the varieties in more general use in this country. The work is beautifully printed—as becomes a book issued by the Cambridge University Press—and its illustrations, both in colour and in black and white, are admirable. Dr. Salaman's book is one of the first fruits of the new and more scientific method of studying horticulture. In this method the thoroughness and enthusiasm which older generations have brought so successfully to bear on the advancement of horticultural knowledge are maintained and rendered more effectual by the linkage with scientific knowledge. That knowledge grows slowly and often lags behind practice, but none will deny that it is the basis on which a sound system of horticultural practice must be established. By showing this incidentally, no less than by his masterly exposition of the theme he has chosen, Dr. Salaman has laid us all under a heavy debt of gratitude.

Forthcoming Trials at Wisley.—The Royal Horticultural Society will carry out trials of annual Poppies, Sweet Sultans, culinary Peas (late varieties only, half-pint of each required), Onions, Parsley, Sweet Corn and Beet during the coming season. One packet of each variety should be sent to reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey, on or before March 31, 1927. (Goods via Horley Station, Southern Railway).

Richmond Hill.—At the meeting of the Surrey County Council, which took place at Kingston-on-Thames, on the 11th of January, it was decided to make a contribution of £500 on condition of the Richmond Council contributing a like sum, towards the purchase of the Orleans riverside estate at Twickenham, which will practically safeguard the beautiful view now to be obtained from Richmond Hill. The land, which will cost £10,000, will be acquired by the Twickenham Borough Council, and will be thrown open to the public, forming a continuation of the existing riverside walk from Richmond towards Twickenham. The purchase price, within a few hundred pounds has already been either promised or collected

Paris Spring Show.—The Centenary Exhibition to be held in Paris at the end of May this year is to be held at Cours-la-Reine, on the banks of the Seine, where so many successful horticultural exhibitions have already taken place. The list of members of the English Committee is to hand, and we are glad to see among the names of those participating such well known British horticulturists as Lord Lambourne, Sir William Lawrence and Col. Durham, President, Treasurer and Secretary respectively of the Royal Horticultural Society; Miss Ellen Willmott; Sir David Prain, formerly Director of the Royal Botanic Gardens, Kew; Dr. A. W. Hill. the present Director; and Mr. C. H. Curtis, Managing Editor of *The Gardeners' Chronicle*. Irish horticulture is to be worthily represented by Sir Frederick Moore and Mr. J. W. Besant, past and present Directors of the Glasnevin Botanic Garden, and among the countries taking part, other than European, are Brazil, Canada, the United States, India, the Union of South Africa, Australia and New Zealand. The list of prizes offered is a long one, and includes valuable presentations from the President of the French Republic, the Ministries of Public Instruction, Agriculture and Commerce, and a number of public authorities and societies.

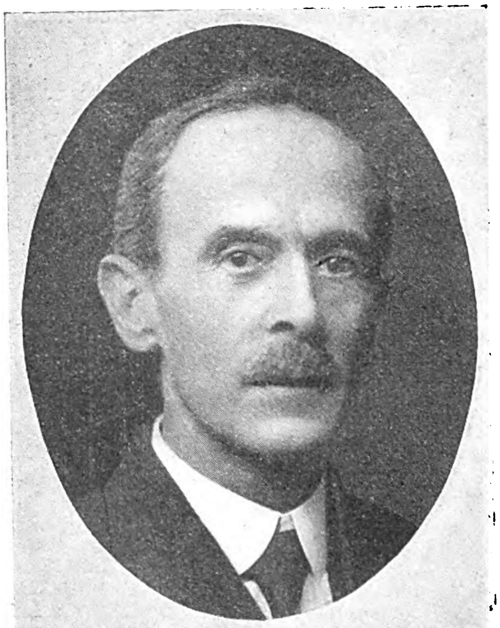
---

* *Potato Varieties*, by Redcliffe N. Salaman, M.D., Cambridge University Press. Price 25/- net.

North and Central American Plants in the Sloane Herbarium.—At the meeting of the Linnean Society, on the 6th inst., the President showed a series of lantern slides illustrating some of the early botanical collections from North and Central America contained in the Sloane Herbarium at the British Museum. These included a small collection of mosses and liverworts from Virginia, by the Rev. William Clerk (1729), and one of flowering plants from the same collector arranged in months according to the time of flowering; a collection of Joseph Lord from Carolina (1704) containing good specimens with neatly written descriptive labels; extensive collections from Carolina and Virginia in 1710 and 1711 by John Lawson, Surveyor-General of North Carolina from 1701 to 1711, who met his death in an expedition against the Indians in the latter year (many of the specimens bear Lawson's original labels with date, locality and other information, and references to his book, *A New Voyage to Carolina*) (1709); examples from James Petiver's *Hortus Siccus Americanus*, which was purchased by Sloane and forms part of his herbarium; (among these are specimens sent from the Scots Settlement in Darien by Archibald Stewart, surgeon, 1699); and collections from Maryland by the Rev. Hugh Jones, who died in 1701, a resident in Calvery County, Maryland, and by William Vernon and Dr. Kreig, who made a joint expedition to Maryland (1698) and brought home a large number of plants, which were catalogued by John Ray. Some of Ray's annotations are preserved with the specimens. They were later named by Dr. Solander, in whose manuscripts are descriptions of the novelties. Photographs were also shown illustrating a collection by William Bartram (1739-1823), and containing specimens of the plants mentioned in his *Travels through North and South Carolina, Georgia, &c.*, (1791).

A Long-keeping Melon.—Mr. A. J. Sanders, gardener to Col. Giles Loder, High Beeches, Handcross, Haywards Heath, has sent us such an interesting account of a long-keeping Melon that we publish his communication in full: "A very old friend of mine, Mr. A. Alderman, whose portrait appeared in these pages some time ago, sent me, in 1925, a few Melon seeds received from his son in South Africa. Some of the seeds were sown, with those of other sorts, in 1926, and the plants, when ready, were cultivated in the usual way in cold pits, wherein Violets are grown during winter. Early in September the few fruits remaining were cut and laid on a shelf at the back of a lean-to Muscat vinery; some ripened and were used, one or two shrivelled and were useless but two remained sound, both the produce of the South African seeds; one of these I sent to my old friend at the time, who wrote me a very charming letter in return. My one remaining Melon (South African variety) was examined from time to time; it kept its colour and remained sound; just before Christmas, 1926, I removed it from the shelf, and as it had an odour suggestive of ripening, I removed it to a house, where Lady Downes Grapes were still hanging, placing it directly over the hot-water pipes, which are kept just warm to suit the Grapes. On December 30, I again examined the Melon, and its pleasant odour suggested that I might risk sending it in to the house for dessert—especially as my employers had friends to dinner—and take the chance of a wigging. The next day I was greatly surprised; the appearance of a Melon on the table had been the subject of interesting and favourable comment, and I was told that the fruit was quite equal in flavour to any eaten during the usual Melon season. I examined what little of the fruit remained and found it was perfectly sound flesh of a deep green colour and strongly aromatic. The seeds were quite plump and some of these I am saving, although I have some left in the original packet. The description on this packet reads: 'S. Africa, 1925; green flesh, clear skin; one of the sweetest and finest-flavoured Melons I have ever tasted (Bert).' As a Melon cut in September and used on December 30 seems to be something out of the common, I have penned these few lines and should like to know if any of your many readers have had a similar experience of the keeping qualities of a Melon. Perhaps this particular variety only has that quality."

Mr. Robert L. Harrow, V.M.H.—For over thirty years, Mr. R. L. Harrow has demonstrated his skill as a cultivator at the Edinburgh Botanic Garden, but he has carried out his work so unostentatiously that certain folk who are not acquainted with that famous garden may have been surprised to learn that he has been awarded the Victoria Medal of Honour in Horticulture. His many friends, however, have wondered why the honour was so long delayed. Mr. Harrow had an excellent training for the position he occupies at Edinburgh, a position corresponding to that of Curator at Kew and elsewhere. He is a native of Kent, and his training began in the gardens of Heronden Hall, Tenterden; while still in his teens he obtained employment with Messrs. B. S. Williams and Son, at Holloway, where he became acquainted with the large numbers of plants then grown under glass in a high-class nursery. His next post was that of journeyman at Neville Court, Tunbridge Wells, where he remained three years before going to Leyswood, Groombridge, where Orchids were made a special feature. Following three years at Leyswood, Mr. Harrow went to the Botanic Garden, Cambridge, where, under the late Mr. I. Lynch, his knowledge of plants was greatly increased, and he gained a good working knowledge of botany and of the methods of propagating and preparing plant material for the services of the University. In 1891 he entered Kew, with high recommendations from Mr. Lynch, and became sub-foreman of the Fernery Department. Two years or so later, Sir Isaac Bayley Balfour, Regius Keeper of the Edinburgh Botanic Garden, was, with the consent of the Treasury, preparing to rebuild the range of glasshouses there, and came to Kew in search of a young man to take charge of that department; Mr. Harrow was chosen on the recommendation of Sir William Thistleton Dyer. A few years later he was appointed Assistant Head Gardener at Edinburgh, and on the resignation of Mr. A. D. Richardson he was given that full charge he has so eminently justified. During his long stay at Edinburgh, Mr. Harrow has seen many changes in the Botanic Garden and has taken his full share in the alterations and improvements made under glass and out-of-doors, while his associations with the late Sir Isaac Bayley Balfour and the present Keeper, Professor W. Wright Smith, have always been of the pleasantest.



MR. ROBERT L. HARROW, V.M.H.

Annuity for a Gardener.—In his will, the late Rev. W. D. Rudgard, rector of Longford, Warwickshire, who died last October, left an estate of over £25,000. The income is to be equally divided between his gardener, Mr. William Sephton, his secretary and his housekeeper, for life.

Glasgow Flower Show.—An application by the Directors of the Glasgow and West of Scotland Horticultural Society for the use of the new Kelvin Hall on the occasion of the annual exhibition in the first week of September has been refused by the Corporation, as the Committee were unable to pledge themselves that the new hall, now in course of erection, would be ready in time. A meeting of the Directors has been called to consider the position, which is similar to that of a year ago, when it was decided to hold the 1926 show in St. Andrew's Hall, but as a financial loss of over £300 was incurred on that occasion, it is probable that the list of classes will be further restricted, and the prize-money reduced so as to avoid a repetition of last year's shortage, which was not due to any decline in public patronage. Marquees provide an alternative, but there might be a difficulty in obtaining a suitable site, and the weather in September involves considerable risks.

National Rose Society's Summer Show.—The summer show of the National Rose Society will be held in the grounds of the Royal Hospital, Chelsea, on Friday and Saturday, July 1 and 2.

Horticultural Club.—The opening dinner and lecture of the Winter-Spring Session, 1927, of the Horticultural Club took place on Tuesday last at the Trocadero Restaurant, Piccadilly Circus, London, and was a great success. The company numbered forty-four; Mr. Gerald Loder, Chairman of Committee, presided, and amongst the guests were Lt.-Col. F. R. Durham, Secretary of the Royal Horticultural Society, and W. R. Oldham, Esq., a member of the Council of the Royal Horticultural Society. After the dinner, Mr. Wm. Cuthbertson, V.M.H., gave an address on "Some Horticultural and Other Notes Gleaned on a World Tour." Mr. Cuthbertson's remarks were very entertaining, and regret was expressed at the close that he had not been able, owing to limitations of time, to give an account of his journeys beyond India; many expressed the wish to hear an account of horticultural conditions in New Zealand and Canada, which Mr. Cuthbertson promised to give on a future occasion. The Chairman said the meeting was the most successful for a long time; in welcoming the guests he took the opportunity of congratulating Colonel Durham on his recent engagement to be married, and he hoped that on another occasion he would be present with his wife. Mr. Loder, in thanking Mr. Cuthbertson, whom he referred to as one of the best-known men in the horticultural world, expressed the great pleasure all had derived from his interesting address.

Fifth International Botanical Congress, 1930.—A meeting is to be held in the Linnean Society's Rooms at Burlington House, Piccadilly, on Thursday, January 27, at 3.30 p.m., to initiate arrangements for the fifth International Botanical Congress to be held in 1930.

Sugar Beet in Yorkshire.—The increase in Sugar Beet cultivation in mid-Yorkshire led to the erection of a factory at Poppleton, where work was commenced last October. The formal opening took place last Friday, when the ceremony was performed by Lady Invernairn, the wife of Lord Invernairn, of Strathnairn, one of the Directors of the Second Anglo-Scottish Beet Sugar Corporation, which owns the new factory. During the short time the Poppleton factory has been working, 50,000 tons of Beet, yielding 6,000 tons of sugar, has been sliced. The daily capacity of raw Beet dealt with is 1,000 tons, and 400 men are employed. At the opening ceremony Lord Weir, Chairman of Directors, stated that the company made a point of being, so far as possible, all-British, and ninety-five per cent. of the machinery was British. Sir Francis Floud, Permanent Secretary to the Ministry of Agriculture, said he was convinced that the granting of a subsidy to the industry was the best thing the Government had done for a hundred years.

Brussels International Horticultural Exhibition.—The International Horticultural Exhibition to be held in Brussels this year will take place in the Grand Hall du Cinquantenaire, from September 10 to September 19.

The Artistic Value of Gardens.—Mr. Owen Wallis, the manager of Messrs. Harrod's Estate Department, has issued a review of the property market during the year just ended, in the course of which he remarks upon the importance for the house-purchaser of finding a house with at least an acre or so of well-screened land in new districts where there is a danger that the erstwhile open country may be disfigured by too close building. He continues, "There is nothing more beautiful than trees, and, as a rule, the growing timber round the smaller country house is diversified . . . . There is at the same time a screen which excludes possible eye-sores, and something, too, which by judicious and inexpensive planting can be permanently maintained and improved, adding to the attractiveness of a house . . . . Bad building has put a premium on good gardening, for the latter may be an effective protection against the wrong done by the former. It is not practicable to buy the land immediately within the vista of a house, but careful and well-devised planting may make it a matter of comparative indifference as to what happens in the shape of development and disfigurement of neighbouring sites." While not entirely agreeing with the observation contained in the closing words given, there is no doubt that where a beautiful view is unavoidably spoilt, the best way to shut it out is by masking it with well-chosen plantations.

Cemetery Art in Baden.—At the end of April it is proposed to hold, in Karlsruhe, Germany, an exhibition of horticultural art as applied to cemeteries. It will be of an educational nature, and will have as its object the awakening among the public of a desire to improve the appearance of cemeteries, and an interest in this phase of gardening in general. The exhibition will consist largely of drawings, photographs, plans, etc., of cemeteries, with designs for new graveyards or the extension of existing ones. The exhibition will remain at Karlsruhe for four weeks, and will then be removed to other towns, thus reaching in time quite a large public.

Kew Bulletin.—Part 10 of the *Bulletin of Miscellaneous Information*, issued from the Royal Gardens, Kew, brings to a close the volume for 1926. The principal contents of this part, just issued, include a continuation of the "Decades Kewenses," Notes on African Grasses, Contributions to the Flora of Burma, Additions to the Flora of Malaya, The History of Nepenthes laevis, A New Variety of Androsace maxima (A. maxima var. flavida, from the arid hills south of Tabriz), reviews of books, and the title page, contents and index for 1926.

Importation of Elm Trees.—The Ministry of Agriculture and Fisheries has made an Order entitled, "The Importation of Elm Trees (Prohibition) Order of 1926," which prohibits the landing in England and Wales of all living Elm trees from any European country other than Scotland, Ireland, the Channel Islands and the Isle of Man. The Order is made to prevent the introduction of a disease of Elm trees which is prevalent on the Continent but unknown in this country. It comes into force to-day the 15th inst.

William Willett Memorial.—We learn that about £3,000 is still needed to complete the purchase of eighty-seven acres of Pett's Wood, Chislehurst, as a memorial to the late Mr. William Willett, the founder of the Daylight Saving scheme. In view of the rapid extension of building in this beautiful district, it will be a pity if the purchase cannot be completed, or if the acreage has to be drastically curtailed.

A Veteran Oak.—The fine old Oak tree illustrated in Fig. 25, is a conspicuous feature in the dressed grounds at Brocket Hall, Hertfordshire, and, according to tradition, Queen Elizabeth often sat under it when visiting Brocket from her residence at Hatfield, near-by. Mr. Pateman informs us that he recently measured the circumference of the trunk three feet from the ground and finds the girth to be thirty-one feet eight inches. With years the upper branches have lost much of their former vigour, but the tree is still an outstanding object of the pleasure grounds of this fine old estate, which includes an even larger Oak in another part. The photograph was taken in spring, when the grass banks leading down to the lake were beautiful with hosts of Daffodils and other bulbous flowers.

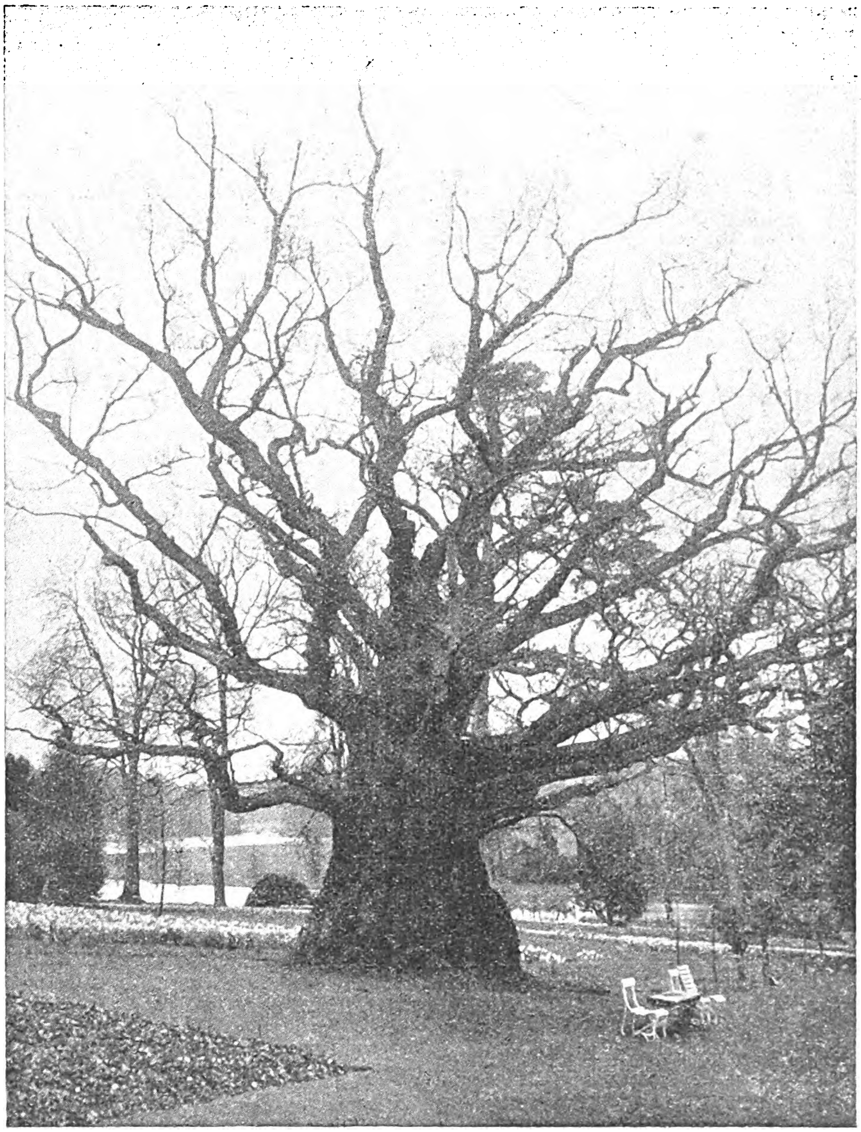


FIG. 25.—THE OLD ELIZABETHAN OAK AT BROCKET HALL.

Appointments for the Ensuing Week.—TUESDAY, JANUARY 18: Winchester Horticultural Society's meeting. WEDNESDAY, JANUARY 19: Nottingham and Notts. Chrysanthemum Society's annual meeting; Royal Gardeners' Orphan Fund meeting; Sheffield Chrysanthemum Society's annual meeting. THURSDAY, JANUARY 20: Ipswich Gardeners' Association's meeting. FRIDAY, JANUARY 21: British Florists' Federation's annual meeting and dinner; Dundee Horticultural Society's annual meeting; Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Chrysanthemums.*—E. Merry and Son, having devoted their attention entirely to the cultivation of this desirable autumnal flower, and being successful exhibitors at Stoke Newington and North London Societies in 1851, can with confidence recommend their selection as suitable either for exhibitional purposes or for general cultivation. The stock is of the most esteemed varieties, including the following selection, at the moderate price of 12/– per dozen, package included:—Anaxo, Arc-en-ceil, Guillaume Tell, L'Admirable, Madame Audry, Madame Corbay, Miss Kate, Monge, Marshal Ney, Plutus, Ne plus Ultra, Racine, Rosa Mystica, Pio Nono. They have also a quantity of the best old varieties as follows, at 9/– per dozen: Beauty, Campestronii, Cyclops, Defiance, Dupont de l'Eure, Gem, Goliath, Duke, King, Lysias, Princess Marie, Salter's Phydias, Sydenham, Queen of England, Vesta. Early orders solicited to secure the stronger plants. A remittance is requested from unknown correspondents, or reference to a respectable house in London. Direct to E. Merry and Son, Florists, etc., Stamford Hill, Stoke Newington, Middlesex, or to their Agent, W. Clark, Seedsman, etc., 25, Bishopsgate Street Within, London. *Advertisement in Gard. Chron., January 17, 1852.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Orchid Grower to LADY LEON,
Bletchley Park, Bletchley, Bucks.

Miltonias.—The species and natural hybrids of the Brazilian section of Miltonias, which include such well-known species as M. spectabilis and its variety Moreliana, should be examined, and any of the plants in need of new rooting material attended to, as the present is the proper season to repot them. Being dwarf plants they are best grown in shallow pans, which are easily suspended from the roof-rafters. In repotting the plants it is advisable to remove all the old and useless pseudo-bulbs, and to arrange the growing,healthy portions afresh into neat, compact specimens, allowing the leading growths room to extend over the compost, as they are apt to grow over the sides of the pans and get damaged. Portions which have few roots to hold them in position should be pegged firmly to the compost as they will not succeed if loose in the soil. The larger-growing species, such as M. Regnellii, M. Clowesii, M. Russelliana, M. bicolor, M. Lamarckiana, and M. candida, are best grown on the plant stage in pots. M. cuneata, which is one of the best of this section, should not be disturbed until its flowering period is over.

Treatment after Potting.—The whole of these Brazilian Miltonias grow satisfactorily in a shady position in a house having an intermediate temperature. Direct sunshine often causes the foliage to assume a yellow, sickly appearance, and although this is perfectly natural, it is not advisable to allow it to become too pronounced by exposure to an excess of light. The pots and pans should be at least half-full of drainage material, as these plants, when in full growth, delight in an abundance of water at the roots, but they do not succeed in a close, water-logged compost. Osmunda fibre and A.1. fibre in equal parts, cut into fine portions, and mixed with live Sphagnum-moss, provide a suitable compost. This open material should be placed rather firmly around the rhizomes of the plants.

Watering.—For some little time, water should be afforded with extreme care, as the young growths are liable to decay if too much moisture is given, while an excess will ruin the compost for ever. When thoroughly re-established in the new material, the plants should be kept moist until their growth is completed.

THE KITCHEN GARDEN.

By R. H. CROCKFORD, Gardener to THE RT. HON. LORD WAVERTREE, Horsley Hall, Gresford, N. Wales.

Exhibition Onions.—Round about this date is a good time to sow Onions required for exhibition. The soil should consist of two parts good loam, one part leaf-mould, and sufficient silver sand to render the compost porous. Pass the materials through a fairly fine sieve. Prepare boxes or pots by carefully crocking them, and cover the crocks with sufficient rough material to prevent the fine soil blocking them. Place the prepared soil firmly in the receptacles leaving a space of three-quarters-of-an-inch at the top. Select good, plump seeds, sow them evenly and thinly, cover them sparingly with very fine soil, and carefully water them in. Sheets of glass and paper should be placed over the boxes; the covering should be removed for a short time each day and condensed moisture wiped off the glass. The seeds will germinate freely in a temperature of 50° to 53°. So soon as seedlings appear remove the coverings, place the pots or boxes near the roof-glass, and thus keep the plants quite sturdy from the beginning, for this is very essential to success. Good varieties are Premier, Ailsa Craig and Cranston's Excelsior.

Mushrooms.—Successional crops of this useful fungus should be maintained. Collect fresh horse-manure daily from the stables and spread the same thinly in a dry, open shed, until a sufficient quantity is obtained. The manure should then be thrown together in a heap to ferment, turning it at intervals of four or five days until it is in a suitable condition, that is, when pressed together with the hand no superfluous moisture will be present. This latter point is very essential, for if the manure is too wet, success will not be obtained. In forming the beds tread or beat the manure firmly. The depth of the manure need not exceed fifteen inches. When all is finished, a plunging thermometer should be placed in the bed, and so soon as the temperature declines to 83° it will be safe to insert the spawn. The bricks of spawn should be broken into pieces of about two inches and inserted in the bed, about one inch deep and nine inches apart. When the bed has been spawned, beat the manure to make it quite firm again. At this time, or within a couple of days, the surface should be covered with good loamy soil to a depth of about two inches, and again beaten quite firmly. This is most conveniently done with the back of a clean spade or shovel. When finished, cover the bed with clean straw, and if all goes well, Mushrooms should appear in from six to seven weeks.

Asparagus.—Strong roots of Asparagus should be lifted carefully and placed either on hot-beds in heated frames or in a Mushroom house; I obtain good results in the latter. Arrange the roots on a bed of leaf-mould, three or four inches in depth, and cover the crowns with the same material. Keep the plunging material moist and force the crowns in a temperature of about 55°. Good shoots will be ready for cutting in from three to four weeks.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to COLONEL SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Pot Vines.—The earliest pot vines will now be making rapid progress; let the forcing be done as much as possible during the day. The temperature may be 55° on cold nights, and 60° on mild ones until the vines come into flower, when 65° to 68° should be maintained with 5° or 10° higher by day with bright sun. Damp all available spaces when the house is closed for the day. Water the vines carefully with tepid water, giving the roots weak stimulants and light top-dressings of vine manure as frequently as they appear to be necessary. Keep the bottom-heat steady at about 80°, adding more fermenting materials if necessary. Do not be in a hurry to tie the shoots if the foliage can be kept clear of the glass, as later they may be drawn down with safety.

Permanent Vines.—Many of the cultural details recommended above for pot vines apply also to vines growing in borders. In many establishments this will be the first house to be closed for starting. See that the borders are in a moderately moist condition; a liberal application of tepid water should be given prior to the vines coming into flower, but the amount of atmospheric moisture should be reduced slightly. Close the house when the temperature is at the maximum. All shoots should be stopped at the first joint beyond the bunch on pot vines, and at the first or second shoot, according to the space available, on permanent vines. Minor laterals may be pinched and regulated according as is necessary.

Melons.—The present is a suitable time to get together a good heap of leaves and stable litter to form a hot-bed for growing Melons. Unless suitable pits or houses are available it is almost useless to attempt to grow perfect Melons, and nothing much is gained in sowing before this date. Let the houses be cleansed thoroughly and all brick surfaces well covered with hot limewash into which a handful of sulphur has been stirred. Sow the seeds singly in small pots, germinate them in a temperature of 68° to 70°, and plunge the seed-pots in a brisk bottom heat. The thermometer may be allowed to rise to 75° to 80° by day, according to the weather. Select an early-maturing and free-setting variety and grow the plants for preference in twelve-inch pots, plunging them closely together. Crop two fruits only to a plant, and, if possible, both should set on the same day.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Winter-flowering Begonias.—Winter-flowering Begonias of the Mrs. Heal, Optima and Elatior type will, in most cases, have passed out of flower by this date, and during their resting period the plants will require careful treatment. I do not advise cutting these Begonias down, rather allow them to die back as naturally as possible. Although care must be exercised with regards to watering, it will be found necessary to give them sufficient moisture to prevent them from drying off completely. Much will depend on the treatment these plants receive during the next two months with regards to growing them successfully during the coming season. Where the Begonia mite is inclined to be troublesome, now is a suitable time to eradicate this pest by vapourising the plants several times during the resting period with sulphur. Campbell's vapouriser will be found the best means of distributing the powder, and it should be used in strict accordance with the directions given by the makers. The whole secret of success in growing these Begonias well is to keep them free from rust and mite, and I have found nothing to equal sulphur to combat both the disease and the pest.

Begonia Gloire de Lorraine.—As these plants pass out of flower it will be wise to select the most robust specimens for stock purposes. They should be cut back and watered sparingly for a short time; treated in this manner they will start into growth more vigorously than over-watered plants, and produce excellent cuttings for the propagation of next season's stock.

Flowering Bulbs.—Examine all bulbs in pots and boxes that still remain in the plunging material, and those that have made sufficient root and top growth should be placed in a cold frame. The latter should be covered with some light material for a day or so, after which the plants may be gradually exposed to the light. Continue to introduce into warmth sufficient quantities of plants in pots and boxes as are required to meet the week's demands of the establishment, always bearing in mind the conditions under which these plants will thrive best, and so give the maximum returns. It should also be remembered that cut flowers last better in hot rooms when they are just opening than those that have been expanded a week previous to gathering them.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STAFFORD Wrotham Park, Barnet, Middlesex.

The Orchard.—All work in connection with the planting of fruit trees should receive immediate attention, for as the season advances it will bring pressing work of other kinds. On some soils planting is best deferred until next month; much, however, depends on the nature of the land and the weather. The ground should be drained thoroughly and well broken up for a good distance around where the trees are to be planted. In some cases a quantity of fresh, fine soil will be needed to place about the roots. In preparing the stations for the individual trees it is well to provide against the main roots growing downwards into a cold and inert sub-soil. Use farmyard manure sparingly if the soil is in good heart, but if the land is of a poor, sandy character, mix well-decayed manure thoroughly with the staple to encourage the young trees to produce good, fruitful growth. In planting young trees in low-lying land, whether bush or standard specimens, keep the roots well above the natural soil, stake the trees to prevent damage by high winds and mulch the roots with manure.

Pruning Newly-Planted Trees.—The question is whether to prune or not to prune trees the first year after planting is a debatable one. I have pruned and left unpruned newly-planted trees and am satisfied that pruning is the right course to adopt. Until the heads are formed always prune to a bud pointing to the outside of the tree.

THE FLOWER GARDEN.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Aubrietias.—Where these floriferous plants are used in large quantities for spring bedding, means should be taken to propagate the required stock. I find the best and least troublesome method is to pull the stock plants to pieces any time during the winter or early spring and plant the portions in lines in the nursery garden. By this method fine, large clumps are available for planting out by autumn. New or scarce varieties should be propagated from cuttings. One frequently hears cultivators complain that cuttings of Aubrietias are difficult to root, and there is a good deal of truth in their contention when the cuttings are taken from plants grown out-of-doors. If, however, the plants are grown indoors in a temperature of 50° to 55°, and encouraged to make fresh growth, the young shoots may be rooted as readily and in the same way as ordinary bedding Lobelias. Plants raised in this way at this time, hardened off and planted out during April or May, should make fine, large specimens for autumn planting.

Phloxes.—The many fine varieties of the border Phlox are invaluable for making a display of bright flowers, either in beds or borders, by themselves, or for grouping in the mixed or herbaceous border. During open weather young stock may be planted, or the old clumps replanted, which is necessary if they are suffering from attacks of eel-worms. Some of the weaker-growing varieties are very liable to be attacked by this pest, against which liming and fresh soil are necessary. The ground for Phloxes should be cultivated thoroughly and manured heavily, as they are gross feeders; in addition to plenty of well-decayed farmyard manure, bone meal at the rate of six ounces to eight ounces per square yard should be forked in the soil. The best results are obtained from young plants raised from cuttings the previous spring; this is much better than dividing the old clumps, which get hard and woody. If young stock is not available the outer or younger portions of the old clumps should be selected for replanting, rejecting the hard and worn-out central portions. The cuttings inserted in spring should be about three inches in length. Dibbled into cold frames they will form roots quickly, and later may be transferred to the nursery garden, where they will make a fine show towards the end of the season. They are very accommodating plants; young stock may be lifted and transferred to beds in the garden just before coming into flower, without taking any harm, provided the roots are well-watered. It is a good plan to raise a batch from seeds each year, as many fine varieties are obtained in this way, and seedlings, as a rule, are very vigorous.

Planting.—The constant wet weather during November did much to retard planting operations, even on light, workable soils, thus every favourable opportunity should be taken to complete arrears. Light, well-drained soils present few difficulties, as they dry out quickly; on the contrary, it is a mistake to attempt planting on heavy, wet land until the conditions are favourable. With care and forethought, however, many of the difficulties may be overcome; for example, it is unwise to take out holes until the planting can actually be done, for even if it does not rain, water may drain in from the surrounding soil. Where planting has to be done under such adverse conditions, there should always be a quantity of light, dry soil at hand to place around the roots, and, if sufficient, to mix with the heavier staple. By using plenty of light soil about the roots, the plants will form new roots and become established much quicker than they would do if planted direct in the natural heavy medium.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Bulbs in Pots.—If the bulbs were potted early last autumn, and treated as advised in previous calendars, they will be well-rooted and may be brought into the forcing house to form a succession to the earlier batch which is now nearly over. Hyacinths, Tulips, Narcissi and other bulbous plants provide a display of bright flowers during the early months of the year and form a strong link in the unending stream of flowering plants that are necessary to keep the conservatory and greenhouse gay all the year round. Lily-of-the-Valley which may be had in flower from retarded clumps in three or four weeks from the time the crowns are taken from cold storage, is always appreciated, and home-grown crowns may still be lifted and potted to furnish successional flowers. Freesias should be well-advanced in growth, but these are best grown in cool conditions, as, if subjected to much heat, they become drawn and useless. Expose them fully to the light and endeavour to keep the growths sturdy and strong by admitting air to the house on all suitable occasions.

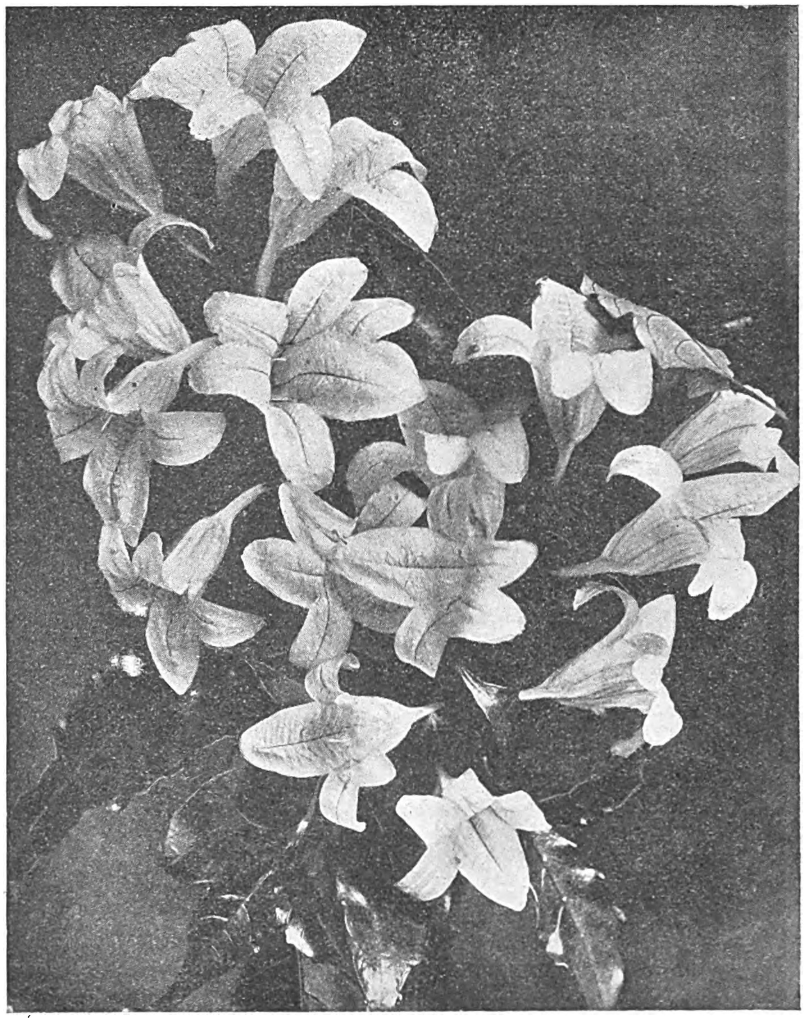


FIG. 26.—ASYSTASIA (SYN. MAKAYA) BELLA.

(see p. 46.)

Erica carnea.—This useful Heather is making a fine display in the borders and should be more widely planted, as any plant that can be relied on to produce its normal crop of flowers during winter is doubly welcome. The rosy-pink blooms are quite distinct from the usual range of colours found amongst outside winter flowers. Many hybrids of this plant were raised a number of years ago by Messrs. Backhouse, Ltd., York, and while these have distinct habits and different shades of colourings, they are all beautiful and may be included in gardens where Ericas grow well. Some of the earlier-flowering species and varieties are E. praecox rubra, E. gracilis, Winter Beauty, Queen Mary, King George and Queen of Spain. The following sorts are, with us, distinctly later in coming into flower, but useful in forming a succession:—J. Backhouse, Pink Pearl and T. Kingscote. These plants may all be increased readily by layering, and quite useful specimens may soon be obtained by placing a compost of peaty soil around the clumps and securing the shoots to the soil by means of pegs. These layers should not be disturbed for twelve months; by that time they may be lifted with good roots.

Peas and Broad Beans.—Where soil conditions permitted of these vegetables being sown out-of-doors during November, the young plants should be carefully watched, as they are peculiarly attractive to a host of enemies. Birds of various kinds soon destroy a promising "braird," and mice and rats will do irreparable damage even before the seedlings are through the soil, while slugs must be prevented by every available means from damaging the young and tender shoots In view of all these difficulties many resort to sowing the earliest batches of Peas and Broad Beans under glass in January, either in pots or boxes in a house. The young plants may be more or less secured from adverse conditions and transferred to their growing quarters when weather conditions are more in their favour. The growing of French Beans under glass is an industry in some parts, and a few pots of these Beans may be sown now to provide early supplies, to be succeeded by later sowings.

INDOOR PLANTS.

CRASSULA MULTICAVA.

THE merits of this delightful plant are such that it deserves to be much more widely known and more generally cultivated than at present, and it is worthy of inclusion in any list of flowering plants for a cool greenhouse or conservatory. Its season of blooming enhances its value, for its myriads of tiny, white flowers, borne on branching stems, appear very shortly after the advent of the New Year.

The habit of the plant is perfect; it is of rather low, bushy growth, and the flowers are carried well above the handsome, bold foliage. The glabrous leaves are rounded, rather succulent, and bright green in colour.

It remains in bloom for a very considerable period, and then, instead of seeding, a tiny plantlet is produced in place of each individual flower. If it is desired, propagation may be readily effected by means of these plantlets, but as numerous basal shoots are produced, these form a quicker and better means of increase.

Cuttings, inserted in a sandy compost about March, root very easily; they should not be placed in a close propagating case, but in a light position in an intermediate house. After they are rooted they may be potted on as required; use ample drainage and a porous compost, mixed with a liberal amount of old mortar-rubble. For the final potting they may be placed either singly in four-inch pots, or three together in a six-inch pot.

During the summer they should be grown in cool conditions, either in a frame or a cool house, and placed in a position where they will receive all the sunshine available. In September they should be removed to a light position in a house having a minimum temperature of 45° to 50°. When the pots become full of roots, the latter may be fed with stimulants. *T. H. Everett.*

HIPPEASTRUM RETICULATUM.

THE median white band on the upper surface of the dark green leaves of this Brazilian bulbous plant is a conspicuous feature and a distinguishing character when it is out of flower. It is less robust-growing than the many garden hybrid Hippeastrums, the leaves being considerably shorter and blunt at the apex. It usually flowers in autumn.

The scape grows from one foot or fifteen inches high and bears four to six flowers each three inches in diameter and of a clear shade of pink pencilled with darker lines.

The bulb is on the small side and has a very little neck. Several bulbs may be planted together in a six-inch half-pot or pan, or individual bulbs may be grown and flowered in receptacles four inches in diameter. *J.*

DIPLADENIAS.

IT is, perhaps, unnecessary to speak of the beauty of the Dipladenias, for whether grown on the roof-rafters for the embellishment of the stove, or as specimens in pots, trained on trellises, they are unsurpassed in effectiveness when well-flowered. They are, in fact, so pre-eminently good in every respect that space should be set apart for a few good specimens in every collection of stove plants grown for their flowers.

To grow good Dipladenias, a considerable amount of care and attention is necessary throughout the growing season. One of the essential points in their cultivation is to encourage vigorous growth early in the year to ensure the shoots being thoroughly ripened by the end of the summer, hence the plants should be repotted rather early in the spring and placed in the warmer end of the stove, where a temperature of about 70° can be maintained, rising another 5° in sunny weather.

The plants should be syringed occasionally with tepid water, and frequent damping of the floors, etc., should be practised to promote a humid atmosphere favourable to vigorous growth.

So soon as the young shoots have made considerable progress, the plants should be stood in a light position as near the roof-glass as possible to promote firm, short-jointed growth. During the time they are in flower, *i.e.*, from June to October, they may be placed in an intermediate temperature and the flowers protected from the sun. After the flowering season is past they should be again returned to the stove.

A suitable compost may be prepared by mixing fibrous loam and peat in equal proportions, adding charcoal nodules and sharp sand in liberal quantity. The compost should be used in a rather lumpy state and every particle of fibre retained to assist in keeping the soil open and porous. When the plants are in active growth liberal supplies of water at the roots will be necessary, hence the drainage must be perfect to prevent the possibility of the soil becoming sour. During the winter, when the plants are at rest, very little water is required.

Propagation is effected by cuttings of young shoots taken when new growth commences in the spring. The cuttings should be inserted in a sandy compost and placed in the propagating case in brisk bottom-heat. Roots are soon formed and the young plants may then be potted and grown on as required.

D. amabilis, a garden hybrid, is a glorious plant, bearing large, rosy-crimson flowers in clusters; D. Brearleyana is also a garden hybrid of great beauty its large, rich crimson flowers being produced with remarkable freedom; D. splendens has delicate, blush flowers, with a deep rose-coloured throat, borne on spikes which keep extending for a long time; D. boliviensis is a small-growing but very pretty species, bearing white flowers with deep yellow throats in profusion; D. atropurpurea is short-jointed in growth, has small leaves and rich crimson-purple flowers. *A. P. C.*

ERIOSTEMON BUXIFOLIUS.

ERIOSTEMON buxifolius, which was shown at the Chiswick exhibition in 1848, although not common, is occasionally seen in gardens. It is an easily-grown subject and very floriferous when well-grown.

The light pink flowers are borne in clusters of from one to four, along the growths in the axils of the closely-set, green, pointed leaves.

Cuttings inserted early in spring root quickly in heat, and after being hardened they may be grown on in cooler quarters.

When the plant is re-established after its first potting, the point of the leading shoot should be removed to induce several growths to develop from the base. If transferred later to five-inch pots, the plants will flower in their second year and, potted annually, will eventually form specimens several feet high.

After flowering, the plants should be given every encouragement to make strong healthy growth, which, if well-ripened, will be wreathed with blossom the following spring. Very careful watering is essential in the successful cultivation of this indoor subject. *F.*

ASYSTASIA BELLA.

THIS beautiful greenhouse flowering shrub (Fig. 26) is best known to our readers under its old name, Mackaya bella, after Dr. J. F. Mackay, author of *Flora of Hibernica.* Bentham and Hooker, however, place the plant in the genus Asystasia, and as such, it is included in the *Index kewensis.*

A well-flowered specimen of this plant is very beautiful, but apparently some growers experience a difficulty in flowering it satisfactorily. One of the secrets of success appears to be giving the plant a decided rest in winter, so that the shoots may become well ripened. After the resting period, the plants should be introduced into a warm house and with suitable treatment they will flower freely in March.

The blooms are produced from the ends of the shoots of the previous season, and this should be remembered when the growths are pruned, which should be done when the flowers are over; the shoots should be cut back to within two inches of their origin, and directly the plants begin to grow freely, they should be shaken out of their pots and repotted in a rich compost containing dry cow manure. As the season advances they should be fed liberally with liquid manure.

Cuttings will root readily in a warm greenhouse in April, and if they are potted on they will flower the following season. The old plants should be transferred to larger pots as required and in time will make extremely handsome specimens. The roots should never be allowed to become dry during the season of active growth, and as much water is necessary when the plants are growing freely, the pots should be well-drained to ensure the soil from becoming stagnant. *T.*

AERIDES AND ALLIED PLANTS.

MANY years ago, no collection of Orchids was complete unless it included examples of Aerides and allied kinds; now, however, a plant is rarely seen; when one is flowered it is greatly admired.

The elegant, drooping racemes of fragrant, fleshy flowers are extremely beautiful, and the comparative ease with which the several species may be cultivated makes the general decline of their popularity all the more remarkable. Although the flowers do not adapt themselves to cut flower purposes, the plants are very decorative in a warm house.

Alas! these plants are rarely found in the condition seen in the old days, with foliage down to the top of the pot; an odd plant is seen with bare stems, a foot or more in length, carrying a few pairs of leaves at the top. Their decline in popularity may be due to their requiring the heat of the hottest house the whole year round; while at the present time there is a general tendency to cultivate plants needing cooler treatment.

The sorts most generally grown comprise Aerides affine, A. crispum, A. Houlletianum, A. Lobbii, A. odoratum, A. Savageanum, A. Larpentae, A. suavissimum, A. Fieldingii and A. Lawrenciae; A. maculosum and its variety Schröderi will succeed satisfactorily in a shady corner of the Cattleya house.

From now until the end of February—not later—is the best time to repot or top-dress any plants that require it. An ordinary flower pot with holes for suspending makes the best receptacle, the plants being more easily managed and the roots less disturbed than when wooden baskets are used. When repotting, pick out all the old decayed moss, and if any roots are clinging to the sides of the pot they should be carefully detached with a sharp knife. A suitable compost consists of equal portions of Osmunda-fibre, cut up rather finely and thoroughly cleaned, and Sphagnum-moss, with ufficient broken crocks to render the mixture porous. The pots should be well-drained and the roots worked in amongst the crocks, finishing with two or three inches of compost, according to the size of the pot, the whole to be made moderately firm.

Water should be applied carefully for some time, only sufficient to keep the moss in a living state being necessary. On fine, bright days a slight spraying will be beneficial, but during the hot summer days, when the plants are thoroughly re-established, syringing twice a day is advisable, and it will keep them free from insect pests.

There are some little differences in the requirements of the different species, but the observant cultivator will soon detect these.

Saccolabiums include upwards of forty species, many of which are of botanical interest only, but S. ampullaceum, S. bellinum, S. curvifolium, S. Hendersonianum and S. violaceum are worth a place in a collection.

The genus Rhynchostylis includes some of the most beautiful of this class of plants, and they were formally grown under the name of Saccolabium. The best are R. coelestis and R. retusa, of which there are several varieties.

The cultural treatment of Aerides, Saccolabium and Rhynchostylis are identical, as all require the highest temperature usually maintained in glasshouses and a constantly moist atmosphere that should approach saturation during the growing season. *J. T. B.*

HARDY FLOWER BORDER.

SILENE ASTERIAS GRANDIFLORA.

An uncommon Silene, or Catchfly in gardens, is that called Silene Asterias grandiflora. It is an improved variety of an old-fashioned garden plant, and has practically superseded the old S. Asterias; yet one may go into hundreds of gardens without seeing either the old one or the improved variety. I remember a good many years ago, a short controversy arose regarding its duration of life. The discussion did not last long, however, as few people were in a position to speak with practical experience of the plants. At that time the writer grew S. Asterias grandiflora, which he had raised from seeds, and he had no hesitation in saying that it was a perennial, while others stated positively that it was a biennial.

I observe in a generally reliable list of hardy flower seeds that S. Asterias grandiflora is said to be a perennial which will flower the first year from seeds if sown early. The writer has never sown it early in heat, but he knows that it will flower the second year if sown in the open in April or May. It is a distinct, though not showy, plant, if seen in solitary specimens, and is much better planted in clumps of a dozen or more, so that raising from seeds is the most economical method of securing a clump or group. The plant grows about a foot-and-a-half high, and gives large, globular, heads of crimson flowers. The writer cannot contend that it is in the front rank of border flowers, but it is a subject worth growing and worth knowing.

RUDBECKIA HIRTA.

This, the Hay-scented Coneflower, is a capital border plant, not too well-known, but a pleasing species when compared with the other Rudbeckias more commonly cultivated. It is a summer-flowerer, also, and its moderate height and distinctness render it acceptable to a good many cultivators of hardy flowers. It grows about two feet high only, although I have had it rather taller. It is distinct by reason of its downy appearance, caused by the small hairs on its foliage, whence it derives its specific botanical name. The flowers are of a good size and are of a fine orange with a dark centre, not so much elevated as that of some of the other Rudbeckias. It has received its popular name of the "Hay-scented" Coneflower from the fact that the whole plant smells faintly of new-mown hay.

R. hirta is quite a good hardy perennial, and will thrive in any common border soil. With the writer, it appeared to be happier in a rather poor and dry place than in a border or richer compost and with more moisture. It will succeed for several years without disturbance, if required, but if it should show any signs of exhaustion the clump may be lifted and divided, replanting the more vigorous outgrowths. It is increased by division or by seeds, which may be obtained from some seedsmen. If seeds are sown in good time they will produce plants that will bloom the following year. *S. Arnott.*

DOUBLE PRIMROSES.

There is something singularly attractive in the double forms of the English Primrose, and they possess an almost indescribable charm redolent of the old-time florists and of the old English cottage gardens. Unfortunately, several of these delightful double Primroses are now exceedingly rare, some, possibly, entirely lost to cultivation, and others lead but a precarious existence. This languishing of an old favourite is to be deplored, and anyone who may assiduously collect and enthusiastically cultivate these lovely and wholly English plants, would, I feel sure, be conferring a lasting boon to gardens and gardeners; some few trade lists still contain an attenuated selection of double Primroses, and for others the enthusiast could not do better than to search the cottage gardens of old-world villages. As I write, I can visualise from memory just such a cottage garden tucked away in a Cotswold village, the air laden with the perfume of Sweet Rockets, and in spring the narrow path bordered with Auriculas (Bajers, a corruption of bear's ears), and Primroses, followed by Pinks and Sweet Williams.

The double white Primrose is of fairly frequent occurrence and is a chaste and lovely flower; it grows freely and increases fast, qualities which are lacking in some of its congeners, except where they grow in the humid atmosphere so thoroughly enjoyed by them. The double Lilac form (lilacina plena) is also fairly plentiful and is an exact counterpart of the white form in all except colour.

Collections of the remaining varieties are few and far between, and of them the cream are Mme. Pompadour, velvety crimson and very double; Cloth of Gold, double sulphur; Amaranthina, purplish-red; the old double violet and the ancient Tortoiseshell.

I have heard of good collections in Ireland, and I believe that the climatic conditions of that island are conducive to amazing vigour in the Primula tribe.

The double Primroses should be planted in a half-shaded situation, in deep soil rich in humus. It is essential to resort to division of the clumps at frequent intervals, for neglect to do so quickly leads to poor foliage, attenuated blooms, and eventually to the loss of the plants. *K. C.*

CACHRYS LAEVIGATA.

I was once in the neighbourhood of the old castle of Gordon, above Grasse, amazed by the big tufts of a golden-flowering Umbellifer with very thin foliage and stately growth. The plant exhaled a strong and pleasant odour similar to that of the best incense, and this arrested my attention. "What can it be?" was my first question. Some days afterwards, I met a botanist friend at Aix-en-Provence, who told me it was the rare Cachrys laevigata, a plant of Spain and Portugal, which is sometimes found in Provence.

I took some seeds home, and have now, in the driest place of Floraire, a plant that has given its large panicles of yellow flowers throughout the summer and up to the end of September. The seeds exhale a resinous odour, and the whole plant is an acquisition to gardens. It needs only a deep poor soil, a very sunny exposure, and some room for its upward development. *Henry Correvon, Geneva.*

[Hippomarathrum cristatum is sometimes known as Cachrys laevigata, but is distinct. —Eds.]

ALPINE GARDEN.

ASPERULA ARCADIENSIS.

Asperula arcadiensis (syns. A. athoa and A. suberosa) belongs to the popular Woodruff family, and it is quite the most beautiful of all the Asperulas. A profusion of coral-pink flowers crowns the woolly growths that are about three inches high. This plant is most suitable for pot culture, and grown thus forms a decorative subject of great attraction, especially as it lasts a long time in bloom. The specimen illustrated (Fig. 27) is growing in a pan eight inches wide and five inches deep, and is housed in a cold greenhouse through the winter months. *Mark Mills.*

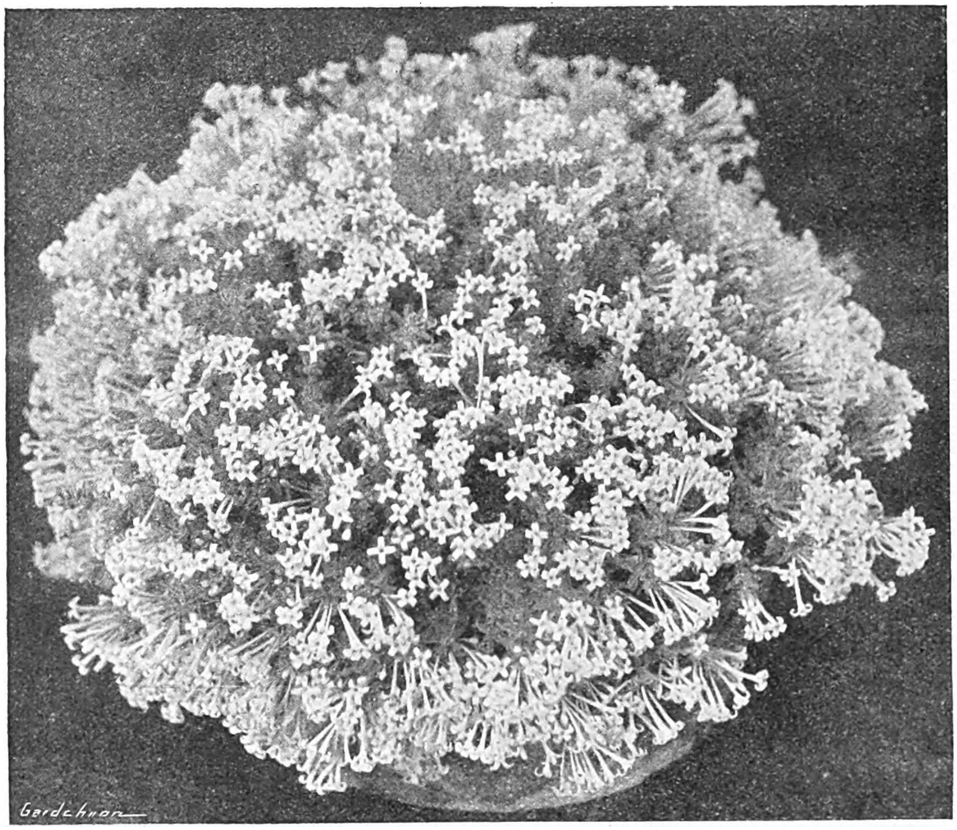


FIG. 27.—ASPERULA ARCADIENSIS.

ADONIS AMURENSIS.

Adonis amurensis generally flowers with me early in February, but is earlier or later according to the weather. It appears quite invulnerable and, although it may be found prostrate in hard frost, soon assumes its erect posture when a mild spell returns. But such an early flower ought to have a sheltered situation, and I have found a dryish one, with some shelter from deciduous shrubs, helpful in hastening the bloom of this Adonis and prolonging its beauty. In my garden, it sends up stems a foot high bearing elegant, finely-cut foliage, surmounted by good-sized golden flowers. In some gardens the plant is dwarfer; its normal height is given by some as nine inches. There is a double variety with golden blooms, with a small centre of greenish colour. Several other varieties exist.

SEDUM CAERULEUM.

No one who has ever cultivated the little Sedum caeruleum in the rock garden or very front of the border, will venture to assert that this tiny subject is not worth growing, although it is better suited to the rock garden than the border. In the former, it is admirable for sowing, or planting out where small early bulbs have flowered and finished their course. These frequently leave bare spots which it is desirable to cover with some late-flowering carpeting plant which will not harm the bulbs beneath, and which, in themselves, will be attractive features. Sedum caeruleum, a half-hardy annual, will meet the desired conditions. It may be sown under glass in March or April, or in the open or in pots in May. It thrives well if sown where it is to bloom, if the plants resulting from the seeds are well thinned. In autumn the little carpet will be spangled with small, delicately-beautiful, light blue flowers, the whole plant being from half-an-inch to three-quarters-of-an-inch in height.

SPIRAEA BULLATA.

Of the many shrubby species of Spiraea, S. bullata (syn. crispifolia) is one of the best for the rock garden, as it is a very slow-growing, dwarf species; a plant in my old garden had, in the course of about twenty years, only attained a height of about two feet. It was grown in rather hard, poor soil to keep it dwarf, but it showed no tendency to surpass the normal height of two feet, which it commonly attains.

This species flowers well and gives numerous flat heads of crimson flowers. It is quite hardy and withstands the most severe winters. Plants may be procured and planted in early spring, and, when they can be obtained in pots, at any time throughout the year, if turned carefully out of the pots and the ball of soil and roots kept intact. *S. Arnott.*

SCORPIURUS SULCATA.

The genus Scorpiurus comprises some half-dozen annual plants of neat tufted habit, growing in sandy districts bordering the Mediterranean, both in Europe and Africa. S. sulcata (Fig. 28) is the most desirable of them all from a horticultural point of view. It is found in sandy fields in Italy and Spain. In cultivation it forms a neat, spreading tuft of leafage on stems radiating from the central root-stock, which is furnished with a long tap-root.

The leaves are alternate, broadly oblong, blunt, or slightly pointed, tapering to a narrow petiole which clasps the stem. The leaf is rather thick and fleshy; its surface is smooth and glossy and of a bright green colour. The stem is somewhat paler in colour and has red stripes just above where it is clasped by the leaf, which add to the plant's decorative value.

The flower stems are gracefully curved and rise from the axils of the leaves on the ends of the branches; they are from three inches to four inches long, very slender, and bear twin flowers on short pedicels. They are of the usual Pea-flower type, and are about half-an-inch in length, with a large, spreading standard and rounded keel; in colour they are golden yellow with a few brownish streaks at the base of the standard and are sufficiently numerous to make a display. The seed pod is very curious, and the plant is worth growing for this alone; it resembles a pale green caterpillar covered with four rows of tubercules and curled like a watch spring; it is nearly an inch in diameter. The blossoms open in the months of May and June in its native habitats.

In cultivation S. sulcata will thrive in any well-drained light soil, where it is fully exposed to the sun; the seeds may be sown in the rock garden or border and the seedlings thinned to about one-and-a-half feet apart. *A. W. D.*

ANEMONES OF THE HEPATICA SECTION.

Few flowering plants are more highly appreciated during spring than Anemone Hepatica (syn. Hepatica triloba). Forms with blue, white and red flowers are frequently met with in cottage gardens, thriving luxuriantly in bold masses in partially shaded nooks and other places, and it is hardly possible to conceive anything more beautiful than well established specimens. The ground should be dug deeply as the plant sends its roots down deeply. Hepaticas are admirable subjects for planting in the north or east end of the rockery; arranged in groups of one colour they produce an abundance of bright flowers during the spring and early summer.

The larger and more showy Hepaticas are varieties of Anemone (syn. Hepatica) angulosa, and have distinct, downy, scalloped foliage and large flowers. The type is suitable for massing and has rich clear blue flowers.

A. angulosa alba is equally effective with white flowers, also the variety rosea.

The following double-flowering Hepaticas are extremely pretty, having large, double flowers:—triloba alba plena, white; triloba caerulea plena, clear blue; triloba rubra plena, red. These make charming pot plants for the alpine house.

The plants are propagated by division or from seeds, which should be sown so soon as they are ripe. Hepaticas are impatient of too frequent division. *W. L.*

CYCLAMEN ROHLFSIANUM.

In his monograph of the genus Cyclamen, Hildebrand describes, p. 84 and table VI, a North-east African Cyclamen which had been already published under the name C. rohlfsianum in the *Bulletin de l'Herbier Boissier* (Geneva, 1897). It was brought from the Cyrenacean desert by Mr. Barbey-Boissier, and grew in his garden at Valleyres, without having ever flowered. Nobody elsewhere, but Dr. Ragionieri, in his garden at Firenze, could ever flower the plant. We have had it here for twelve years and it seems to prosper, but I have never seen it bloom. But, in Firenze, Dr. Ragionieri seems to be able to grow it easily, although he keeps it in a glass-house. He gave me specimens, and I hope to bring them into flower.

Some of the tubers are very large; one measured fifteen centimetres in diameter and weighed more than one pound! According to a letter received from Padre Zanoni, in Benghasi, who sent me my first tubers, the plant grows in deep crevices between the stones of broad walls that surround the gardens ("dolines") of an oasis, called Giok or Girck. These walls are deeply cracked, sometimes fifteen feet to twenty feet deep, and in these crevices the plants are sheltered from strong winds as well as from brilliant sunshine. In the early spring they flower abundantly, and the native boys and women gather the beautiful, sweetly-scented blossoms and bring them into the market of Benghazi.

From the end of March to December the leaves are dry and nothing is seen of the plants. In the winter the tubers begin to send up large, broad leaves, deeply incised, and different in form from those of other Cyclamens by their irregular and big teeth; the young leaves are deep green, but when older they become characteristically spotted all over the surface. The flowers are large, deep carmine, very sweet-smelling, and have the stamens exserted as are those of Dodecatheon (this is, I believe, unique among species of Cyclamen). Later I hope to report whether my plants flower at Floraire this winter. *Henry Correvon, Geneva.*

BOG GARDEN.

PRIMULA ROSEA.

This very beautiful Primula grows and flowers well in peaty soil on the banks of a stream or lake. The sturdy stems, from four to six inches in height, have from six to a dozen clear rose-pink flowers, each with a small yellow eye; the bright flowers are in refreshing contrast to the bright green foliage.

The leaves are from three to six inches in length, not unlike those of our native Primrose, but not crinkled, and only very slightly serrated at the edges; they are almost procumbent. The prominent "resting bud" during the dormant season is quite attractive in its red colouring.

The variety superba is larger in all its parts and, perhaps, a little more intensely coloured. This very fine species was introduced from Kashmir in 1879, and is figured in *Bot. Mag.*, 6437. *Ralph E. Arnold.*

FLORISTS' FLOWERS.

CHRYSANTHEMUMS.

As a competitive flower, it can hardly be said of the past season that the Chrysanthemum drew so many to the show arena as of old, but those who did take part in the prize winning were as keen as ever. No doubt the reason of a comparatively small number of competitors in these days is the altered circumstances of gardens generally, whereby fewer assistants are engaged than in days gone by. The growing of exhibition Chrysanthemums calls for much labour, and therefore it may have to suffer when labour is curtailed.

The "blue riband" of Chrysanthemum shows is probably the prize for a dozen vases of Japanese blooms at the National Chrysanthemum Society's exhibition in London. This class usually provides a display well worth recording. The first prize this season was won by one of the veterans of the cult, Mr. Charles Beckett. I think it is true that he had not visited a Chrysanthemum exhibition for over a dozen years, much less won a prize at one, and yet he came up with new life, as it were, and presented blooms of superlative merit. These were not wanting in size—which, by the way, is a quality thought by far too many as the most important, but they were specially notable for good finish and freshness; two points that come from intelligent cultivation. The hand of a master never forgets its cunning in gardening matters.

With thoughts for the moment on the large Japanese blooms, I may, in passing, name some of the novelties of the year which appealed especially to me. Aloma is one of those close, incurving flowers, in yellow, which may be a trifle small from a show point of view, yet it is most effective and choice. Aquitania has blooms of chestnut colour and is ball-shaped, as its lengthy florets recurve. I like it because of its refined appearance. Scythia, too, is a rounded bloom, but in this case the florets intermingle, showing an amber surface as well as a more yellow reverse. This is a pretty variety. Yellow Majestic need only be named. Possibly we shall see examples more shapely if less large than those noted already, for the variety is bound to be popular. This sport, by the way, cropped up in several places last autumn.

Single-flowered varieties come next in importance, and these did not impress me generally, and at the early shows particularly. It may be the first week of November does not find many sorts at their best; still, my impression is the method of cultivation adopted is often at fault. Topping the leading stems at any time has not assisted the writer, but rather the reverse in so doing; too much valuable time in the plant's growth is lost. The practice is to stop the plant twice in order to get a suitable number of branches; this, of course, in the younger stages, yet it not only retards the flower buds, but results in too many blossoms opening with an undesirable number of florets. The flowers, therefore, require to be pulled—that is, have some of the florets removed, and thus they lose in character. A single variety never opens so true in formation as it does from a natural growth, thinned for show blooms, obviously. We thus not only obtain the perfect flower but get the smaller foliage at the top as well. A single Chrysanthemum with big leaves loses much in grace.

At two meetings, the Floral Committee of the National Chrysanthemum Society, subsequent to its great show, dealt with quite half-a-dozen varieties, so fine, indeed, that there would be some difficulty in matching them from the great number of what may be termed established sorts. Dorothy Capp has white blooms; Golden Seal is a rich, deep yellow; Grenadier, almost scarlet; Guardsman, maroon; Rita, rosy-red on yellow; and Crimson Dawn, crimson with a conspicuous ring of lighter shade in the centre. Specimens of this variety were six inches across, or near to it, and they had perfect shape in addition to great substance. The above list does not exhaust the choice singles of the year, but is sufficient for illustration.

Incurved Chrysanthemums scarcely count in these times for competitive purposes, but the better of them are still in evidence as market blooms. It is this latter aspect that gives the greatest hope for the future in respect to the whole subject. The British Florists' Federation during the autumn, gave the public some idea of what is being done by commercial growers in the fine exhibit at the Royal Horticultural Society's show on November 16. The blossoms, mostly of medium size, were splendidly grown, with not a floret out of place, and timed in freshness to the minute. The past season has been somewhat unkind to market growers. Some have complained of a glut, and, in consequence, indifferent returns. This is so each year, and probably most concerns those growers who do not send regularly and also those whose consignments are not of first-rate quality. So far as my observation goes, the centres are glutted, and home towns neglected. Anyhow, I have been surprised at the prices asked for very poor blooms in places not thirty miles from London.

Varieties like Atalanta, mauve; Enton Sun, rich sparkling apricot; Ruddigore, bronzy-red; and last, but not least, Yellow Favourite—a form of a most popular late-flowering type; are, among others, useful additions.

Of early out-door Chrysanthemums no outstanding new sorts have been forthcoming, although the rich yellow Madeline may prove a really valuable sort when tried. I hear of several sports of note, but as these have not come before the public, it is well to wait before writing more about them.

Out-door Chrysanthemums have great interest to the trade grower in particular, and the future looks bright for this section. These varieties may be grown with a minimum of labour and the flowers are available when blossoms of many other plants are waning. It would appear that this type of Chrysanthemum is not popular as an exhibition flower, for in 1926 an exhibition offering prizes for them did not entice a single entry. *H. S.*

PERPETUAL CARNATIONS AND THE FUEL SHORTAGE.

Few varieties of the perpetual-flowering Carnation will open their blooms satisfactorily in a lower temperature than 50°, and in most gardens the present fuel shortage has made the maintenance of that amount of warmth an impossibility, with a consequent shortage of bloom. Certain varieties, however, do succeed in cooler conditions and are well worth noting. In a collection of about twenty varieties, the outstanding sort is Topsy, which, although the temperature of the house has dropped to 35° and been in the neighbourhood of 40° for some time, continues to open its blooms to perfection; Rose-pink Enchantress, White Wonder and Mikado also open well. Laddie and Carola open very slowly, with a split calyx. Varieties that appear to be at a standstill are Baroness de Brienen, Eileen Low, Saffron, Peerless and Triumph. Other varieties, including Delice, show colour, but do not develop their petals satisfactorily in so low a temperature. The plants, however, remain in perfect health, and one can anticipate an extra flush of bloom as the days lengthen, owing to the retarding effect of a more natural wintering.

No doubt other gardeners with a larger collection could give the behaviour of other varieties in a low temperature, and a useful list could be obtained. The ideal position for plants when fuel is scarce seems to be near a lime-washed back wall of a well-lighted, lean-to house. In such a position they receive the maximum amount of warmth with proportionate light, air and freedom from damp.

Open stages in winter are to be preferred to those covered with ashes or shingle, a freer circulation of air being maintained, whilst a dusting of fresh lime on the floor will keep the atmosphere sweet and healthy.

Blooms that are tardy in opening may be picked when half-developed and placed in water in a warmer house or the dwelling house, when most varieties will open to perfection, the scent also being improved.

During a period of low temperature the water-pot is hardly needed for days, in fact a few plants here were not watered, inadvertently, for a month, and although quite dry, they remained healthy. *R. Gardner, Heywood Gardens, Cobham, Surrey.*

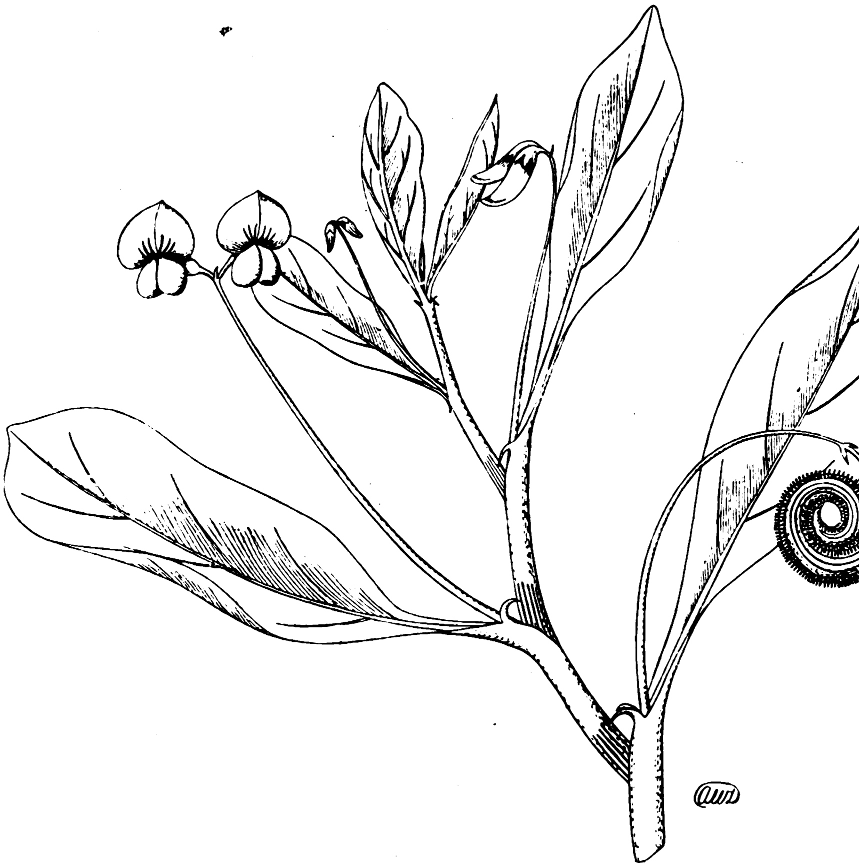


FIG. 28.—SCORPIURUS SULCATA.
(see p. 48.)

THE RIGHT OF LIGHT.

The right of light is probably one of the most valuable rights over land which the English law recognises. It is to this right that notice boards with the words "Ancient Lights" on them refer to, and it is to preserve this right that property owners put up a wooden screen so soon as an adjoining owner erects a house with windows overlooking his neighbour's vacant land. The right of light or the easement of light, as it should be called, is a right which the owner of property may acquire, to have a flow of light coming to his premises, and to prevent the owner or occupier of the adjoining land from putting up any building or doing anything else which will obscure such light. From this it will be seen that not only is it a very useful right to acquire, but if such a right is allowed to be acquired against an owner of property, that property will greatly depreciate in value. The questions which arise then are by whom and against whom can this right be acquired and what is the method of its acquisition.

In the first place the easement of light can only be taken advantage of by the owner or occupier of land on which stands a building with windows opening on to someone else's property; thus the owner of a vacant piece of land can never claim or acquire the easement of light. The usual method of acquiring the easement is by what is known as prescription or long and uninterrupted usage, although it may also be exercised under a special grant from the owner of the land over which it exists. By the Prescription Act, 1832, it is enacted that when the access of light to any house or building has been actually enjoyed for a full period of twenty years without interruption, the right to it is absolute, unless it was enjoyed by some agreement in writing. Twenty years then is the period during which the right must be exercised before any action can be begun to prevent the adjoining owners or occupiers from interfering with it.

When a man has acquired a right of light, to what amount of light does this entitle him to enjoy? It used to be thought that when once such a right had been acquired the owner was entitled to the same amount as existed at the time of the acquisition of the right, but it has since been decided that the right is only to a reasonable amount of light, and unless the owner of the premises can show that there has been a substantial interference with the comfortable use and enjoyment of the building the fact that he has been deprived of some part of the light which he formerly enjoyed does not entitle him to bring an action. Nor has he any power to increase the burden cast upon the adjoining owner by opening more windows and so claiming more light in respect of them, than he formerly enjoyed. On the other hand, however, if the room which the windows used to light has been out of use during some of the period during which the right was being acquired this will not destroy the right, although if the windows have been shut up this will amount to non-user, and the time during which they are closed cannot be counted.

If a right of light is being interferred with, the person who is entitled to the enjoyment of the right can claim damages for any loss the interference has caused him, and also an injunction preventing any future interference *Harold Sharman.*

WILD GARDEN.

EPIGAEA REPENS.

This is a North American plant, known popularly as Mayflower, and belonging to the Ericaceae. It forms a small, trailing, evergreen with delightfully fragrant, rose-tinted flowers, which are borne in small clusters during late spring and early summer. It was introduced in 1736, but is by no means common in gardens. Its natural habitat is under Pine trees, therefore such a position should be selected for it in the garden. The rooting-medium should consist of sandy peat.

This Epigaea transplants with difficulty, unless it is established in pots. It makes an ideal and interesting subject for the wild garden. *F. W. G.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

ECONOMIC PLANTS OF THE BAY ISLANDS (HONDURAS).

THE Bay Islands are situated in the Bay of Honduras, that is, the part of the Caribbean Sea stretching from Yucatan to the Republic of Honduras. They extend nearly parallel with the mainland, from which the distance varies from ten to forty miles. Geologically, they are a prolongation of Cape Salsipuedes (Punta Sal) by Tela, and of the high Omoa range which runs between the Motagua and Chamelecon rivers.

The area of the whole archipelago, which forms the Honduranean department of "Islas de la Bahia," is about 775 sq. km. (300 sq. miles), and the population numbers about 6,000. The names of these islands, from west to east, are: Utilla (Utila), Ruatan (Roatán), Helen (Elèna), Murat (Morát), Borburata (Barbareta), and Bonacca (Guànaja), while south of Ruatan and much closer to the mainland are situated the two small Hog Islands (Cayos Cochinos).

The islands are surrounded by numerous keys and coral reefs, and they are apparently of volcanic origin. Ranges of low hills traverse the same, and isolated peaks reach in Bonacca an elevation of over 365 metres (1,200 feet) above sea-level, while in Utilla the highest hill does not even reach one hundred metres (300 feet). From these ranges small streams or gullies descend to the sea, but on Utilla and Murat islands the inhabitants are entirely dependent upon rain and well-water.

Limestone is the principal formation of the Bay Islands. The lower parts consist of coral, and, geologically speaking, they have been raised above the level of the sea in recent times. Many of the coral reefs, which surround the islands and keys, are still in the process of formation. The shore of the Bay Islands consists largely of ragged limestone which renders it very difficult to walk along by the sea. Such places are locally called Iron Shore, or Iron-bound Shore, from the amount of iron contained in this limestone. Slate is met with on the more elevated islands of Ruatan, Bonacca, Borburata and the Hog Islands. Quartz, granite and sandstone are also found.

The climate is agreeable, inasmuch as cool sea breezes blow almost constantly. The average temperature is from 80° to 85°, and very seldom does the thermometer register 100°; during January or February nights it may occasionally fall so low as 60° or 65°. There is hardly any disease met with at the Bay Islands, except for light cases of malaria at the changes of the seasons.

The winter or rainy season sets in during October and comes to an end with the beginning of March. The remainder of the year is known as the summer, or dry season, but only the months of April and May are entirely free from rain. During June and July light showers are rather frequent, and occasionally such is the case in August and September. The wettest and most disagreeable months of the year are November, December and January.

The inhabitants of the Bay Islands have nearly all descended from those of the island of Grand Cayman (a dependency of Jamaica), the number of immigrants from England, Scotland, the United States, Germany and other countries being comparatively insignificant. A small number of "Spaniards," as the Ladinos or Honduraneans of Spanish speech are called by the Bay Islanders, have arrived from the mainland. On Ruatan Island there is also a settlement of Black Caribs (a mixture of Carib Indians with Africans) who in 1796 were deported by the British Government from their original home, St. Vincent (one of the Windward Islands), and put ashore at the Bay Islands. Negroes and Mulattoes form the bulk of the population; nevertheless, white people predominate in Utilla, Bonacca, and in several smaller settlements on Ruatan.

English is the predominating language, and in spite of the fact that these islands have belonged to Honduras since 1861, many of the older people do not understand Castilian. The Caribs have a language of their own, but many of them know English and Spanish also. The Bay Islanders talk English with a slow drawl, putting the stress generally on the last syllable. A few of the local English names have been borrowed from the vocabulary of the Mosquito or Miskito Indians who inhabit part of the eastern shore of Honduras and Nicaragua. Settlements from the English of Jamaica on this so-called Mosquito coast, date back several centuries, and Miskito words were adapted by the colonists to designate the names of plants and animals not met by them in the West Indies. The local English names are, therefore, with a few exceptions, the same as those used in British Honduras, and among the Creoles of the Mosquito Coast.

The local Spanish names are, of course, identical with those used on the neighbouring Atlantic coast of Honduras, which often differ from those met with in the interior and on the Pacific slope, and are more related to the vernacular names of Cubar.

This being the first attempt to study the flora of the Bay Islands, the writer cannot claim to present a complete list of the economic plants which are met with. There are certainly to be found in the bush many minor trees and shrubs, utilised in some way or other by the primitive native population, which have escaped his observations. It is believed, however, that this paper, incomplete though it may be, will be found of use both to visitors and to residents of the islands.

Descriptions of plants found on the neighbouring mainland of Honduras are scattered through a vast number of publications, but most of this literature is unreliable and out-of-date on account of the uncertainty attaching to the names used by the earlier writers. Honduras has not attracted the attention of foreign naturalists to such an extent as other parts of Central America, and the local prosecution of study has received very little encouragement. Our knowledge of the flora of this Republic is, therefore, still in a fragmentary condition.

Agriculture (fruit raising) is the chief source of income of the Bay Islands, but the ground is practically untilled, and there is not a single plough in the whole department. Some of the most important cultivated plants, as Bananas, Plantains, Coconut Palms, Yams and Sugar Cane are of old-world origin. Maize or Indian Corn (Zea Mays, L.), which ranks as a staple food in the larger part of Spanish America, is not much cultivated by the Caribs or by the English-speaking Bay Islanders. Of the different species of Beans, by far the most common one is the Red Bean, a form of Phaseolus vulgaris, L., which is somewhat smaller than the Kidney Bean of the United States. American Kidney Beans are also imported.

With the natives of the Bay Islands, including the Caribs, Cassava, Yams, Coconuts, Bananas and Plantains are the staple food subjects. Bananas and Coconuts furnish also the great bulk of the export trade. Rice (Oryza sativa), a native of Asia, and said to be found growing wild in South America, is occasionally cultivated in ordinary fields, without irrigation. Practically all the Rice for local consumption is imported from the East Indies and the United States by way of the American Gulf ports. The Bay Islanders cook it in Coconut milk.

Sugar Cane (Saccharum officinarum, L.), which was introduced by Hernan Cortés, the conquistador of Mexico, in 1526, from Haiti into Trujillo, is the source of crude sugar and syrup made with the aid of the most primitive machinery. Of late, the cultivation of this plant has diminished considerably, the better class natives using exclusively imported, refined sugar. The juice is also taken as a beverage after being left to ferment, and there is also a little rum distilled clandestinely.

Some of the important economic plants of the neighbouring mainland of Central America are entirely absent in the Bay Islands, except perhaps a few specimens planted in gardens as ornaments or for experimental purposes. Such plants are not listed in this article, as they cannot be included among the economic plants of the Bay Islands. This, for instance, applies to Cotton (Gossypium sp.), Tobacco or Tabaco (Nicotiana Tabacum, L.), the Castor Oil Plant or Higuerillo (Ricinus communis, L.), the Rubber Tree or Hule (Castilla sp.), Coffee (Coffea sp.), Cacao (Theobroma Cacao, L.), etc.

For convenience, the plants described have been divided into four classes, namely, fruits, vegetables, Palms and miscellaneous economic subjects. In each case the scientific name is followed by the local English and Spanish names, and a few notes are added with regard to the native method of cultivation, local uses, etc. An attempt has been made in each division to mention them in the order of their importance, but this has not been rigorously adhered to.

BANANAS AND PLANTAINS.

The Banana or Guineo (Musa sp.) was apparently not found in America in pre-Columbian days; it is not mentioned by any of the early explorers, conquerors and historians of the new World. During the early colonial days it was taken from the Canary Islands to Haiti, and then soon made its way into the remainder of the American tropics. This fruit takes second place among the exports of the Bay Islands; it is shipped to the Gulf ports of Florida in local schooners, a voyage of only three to four days. The first Central American Bananas appearing on the North American market were sent from Utilla Island about 1870. For some time afterwards they made up the bulk of the export trade, and enormous profits were obtained by the natives, but, later, the market was supplied by the mainland of Honduras and other countries around the Caribbean Sea, and the Bay Islanders found it more profitable to raise Coconuts. In these islands practically every one plants some Bananas to sell, but on the mainland the whole trade is in the hands of a few North American companies who have their own plantations, railroads, loading facilities, steamers, etc.

The Banana requires a deep soil, a high temperature, and a great deal of moisture; it rarely produces seeds, and these are generally useless for propagation. New plants are started from the head or rhizome, which is dug up with the machete (a very large, heavy knife) and cut up in several parts, taking care that each one of these divisions, or "bits" as they are called, has at least one eye. Such a bit, which weighs about three to four pounds, is put in a hole in the ground about six inches below the surface and then covered up. Within ten to twenty months the plant will bear mature fruit. Each "tree" bears only one bunch of Bananas; in order to harvest them the whole stem is cut down and one of the surrounding suckers will take its place. Including the large leaves, the plants will reach a height, varying according to the variety, from ten feet to thirty feet. No fertiliser is used and very little tilling is done, except the occasional cutting down of the bush or grass with the aid of a machete. On account of their perishable condition the utmost care has to be taken in handling the fruits, which for export must be cut a little before maturity. The average bunch of the common variety weighs from 50lb to 75lb (25 to 35 kg.). Each bunch is made up of layers or "hands," as they are termed; and each hand contains a number of individual fruits or "fingers." Bunches of fewer than seven hands are rarely accepted for shipment.

Locally, the Bananas are consumed in many different ways; when still green they are boiled and eaten as a vegetable. Ripe Bananas are baked, fried, made into jelly, vinegar, etc.; Banana figs or Banana chips are the sun-dried slices of the mature fruit. A flour, of a yellow colour, is made from the green, full-grown fruit, which, cooked with milk, is a good food for infants and invalids; mixed with wheat flour it is also used to make bread. On account of its nutritive and digestive qualities great stress is laid by some on the future importance of the Banana as part of the food supply of the populations of the temperate zone, but it must be remembered that the Banana consists largely of water and that its protein content and its nutrient value are very small as compared with our staple food stuffs. *Edouard Conzemius*, 33, *Boulevard des Batignolles, Paris.*

(*To be continued.*)

TREES AND SHRUBS.

EUCRYPHIA PINNATIFOLIA.

For late summer effect in the garden few subjects can compare with this beautiful shrub, which, though often described and praised, is still comparatively rare.

A native of Chile, Eucryphia pinnatifolia was introduced in 1859, and is well illustrated in the *Bot. Mag.*, t. 7067. In warm districts it is semi-evergreen, but for practical purposes may be regarded as deciduous. Rather slow and upright in growth, it finally forms a compact bush or small tree from ten feet to twenty feet high.

The rich, glossy-green leaves are produced oppositely near the ends of the shoots and are, as the specific name implies, pinnate, consisting of three or five leaflets.

The flowers (Fig. 29) are produced either singly or in pairs, in terminal, leafy clusters, in such profusion on mature plants as to produce a very striking effect. Each flower is about two-and-a-half inches in diameter and consists of a large, prominent central cluster of golden-anthered stamens, surrounded by four white petals.

No doubt the rareness of this shrub may be attributed to its slowness of growth and to the fact that it is a difficult plant to propagate. Layering is the general method adopted, while of recent years many of the older plants have produced an abundance of fertile seeds, thus providing a ready but rather slow means of increase. It seems to resent being disturbed, and should, therefore, be planted permanently when fairly young, in rich, peaty loam, in a warm, sheltered position. *A. G. F.*

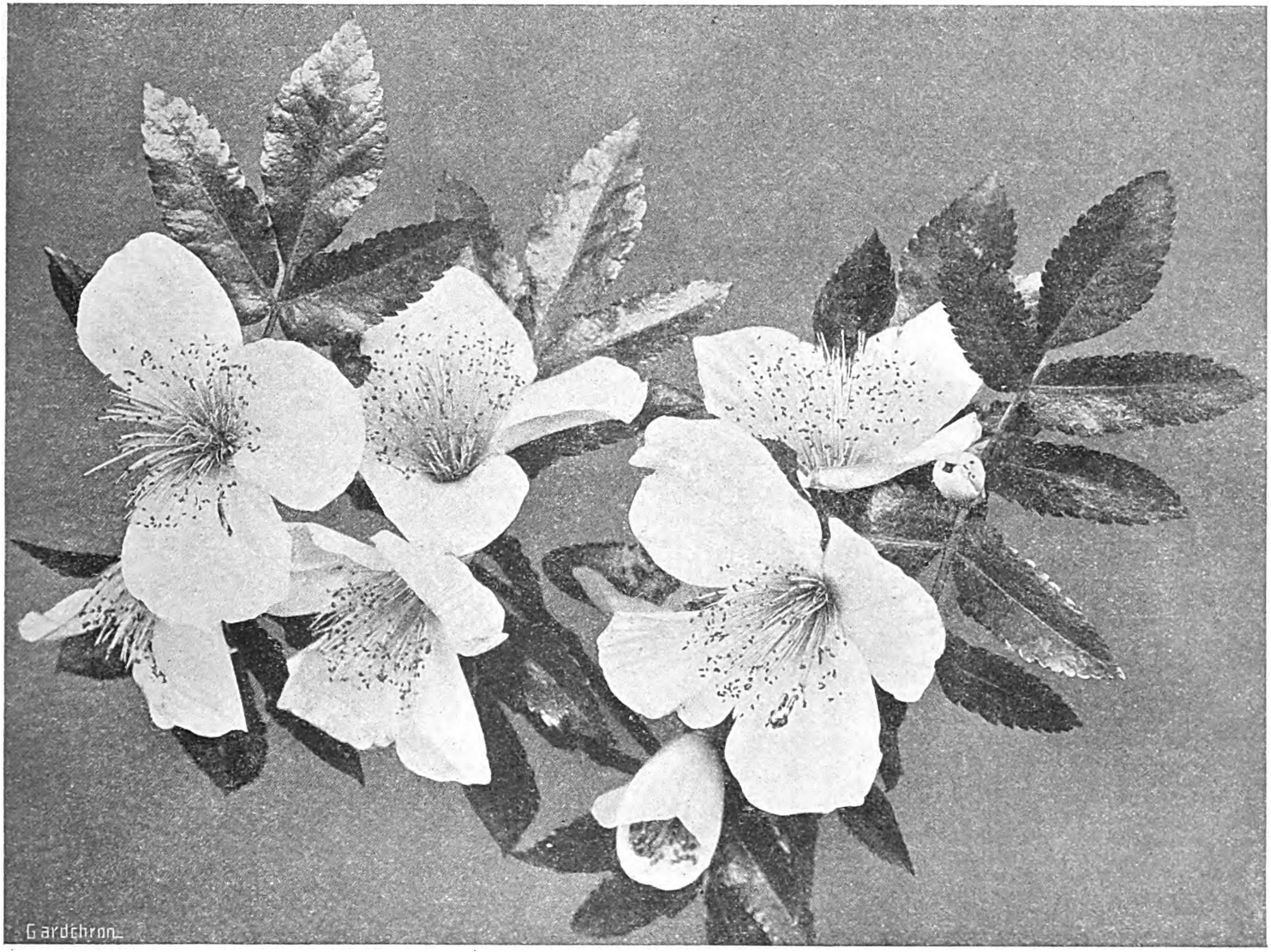


FIG. 29.—EUCRYPHIA PINNATIFOLIA.

CORONILLA GLAUCA OUT-OF-DOORS.

Of the various Coronillas in cultivation, the subject of this note is one of the freest in flowering. It is rarely out of bloom, and in December some bushes, three to four feet high and as much through, in these gardens, were making a fine display with numerous rich yellow flowers. Bright colour in the garden is especially welcome in winter, and for this reason the plant is worthy of a trial in the open, although it is on the tender side; a sheltered spot could be found in many gardens where the district is colder than the neighbourhood of Chepstow.

At Castleford, the plant is quite successful in the open in average winters, but in 1916-1917 the cold was too severe and the plants were killed. Since then, however, it has been growing freely outside, and during very severe weather is protected with a few evergreen boughs.

Such a bright and useful subject is well worthy of a little extra care and attention, for the glaucous foliage is an added charm, and is in pleasing contrast to the wealth of yellow flowers.

Coronilla glauca will succeed in almost any soil, but land of a gravelly nature is, perhaps, best suited to it. In such a rooting-medium the growth is not very vigorous, short-jointed and more woody, and for this reason more able to withstand a spell of cold weather.

The plant may be propagated from cuttings inserted during July and August; they will form roots readily in a cold frame.

C. glauca is an excellent winter-flowering plant for the cool greenhouse, and when the specimens become too large they may be transferred to suitable positions out-of-doors. *B.*

ULTRA-VIOLET LIGHT AND HORTICULTURE.

In *Gard. Chron.*, November 27, 1926, an article appeared on the subject of ultra-violet rays of light and their potentialities in regard to plant culture. The whole question of light-therapy and treatment, whether for human beings, animals or plants, is now assuming such importance that it may be as well to correct some earlier impressions, and place before your readers exact information in regard to what modern scientific research has established, so that the results may be applied to the needs of horticulture.

Ultra-violet rays treatment depends for its results on the application of the short wave-lengths of invisible light that lie beyond the violet rays of the visible spectrum. In the light of the sun the visible violet ends at 3,900 wave-length of the Angstroem scale, but the invisible rays, becoming shorter and shorter, extend so far as 2,900 wave-length on a clear day. It has been established by the researches of scientists that it is the rays that lie between 3,100 and 2,900 wave-lengths that exert definite biological effect. Longer wave-lengths, up as far as the visible spectrum, have been shown to possess no curative value, and have, for example, no effect on rickets.

A spectrum in which the source of light is an open iron arc, shows very clearly the exact location of the *vital rays*, and shows further, that they are completely obstructed by ordinary glass, such as is used in greenhouses. Vita glass, to which reference was made in our earlier article, permits their passage to the extreme limits of the sun's spectrum.

Long years of research by such scientists as Rollier, Finsen, Gauvain and Leonard Hill, working with both natural and artificial light, have proved that these are the rays that promote growth, and prevent and cure weakness and disease. They exercise, moreover, a general tonic effect on the system, whether human or animal, where no specific disease exists, and are the cause of the pigmentation of the skin, and increase of bodily vigour, that are usually associated with sunburn after a sea-side holiday.

In regard to human beings and animals, these facts are universally accepted, and the new science of heliotherapy utilises them to the full with wonderful results. In horticulture, however, the knowledge gained has not yet been actively applied.

Several reasons exist to account for this, the most important being the lack of knowledge of plant physiology in relation to light-waves, coupled with the great expense, both in initial outlay and in maintenance, of artificial light apparatus, which, up to the present, has been the only means at disposal for irradiating plants with ultra-violet light, just as is done to rachitic and tuberculous children in "sun" clinics.

In regard to the action of ultra-violet rays on plants, information is mostly inferential. It is known that their physiology is analagous to that of animals and human beings, though it may function in other ways, and it may be reasonably assumed that light-waves that promote growth and eradicate weakness in one case will do so in other living organisms.

Inferences of this nature receive considerable corroboration from the results of plant culture in countries where the ultra-violet content of the atmosphere is known to be far higher than in Great Britain. In Canada, where the ultra-violet content of the north sky is about twice as high as at Hampstead on a clear day, a very short growing season produces bumper crops of Wheat. In Bangalore, on the Deccan plateau in India at about 3,000 feet above sea-level, and in Kulu and Chamba on the foot-hills of the Himalayas, the most extraordinarily rapid and gigantic growth of fruits and vegetables is obtained, despite primitive methods, and a temperature that is no higher—very often lower—than our own. These results can be attributed to nothing else but the high proportion of ultra-violet light available at these altitudes.

Moreover, fruits and vegetables grown under glass are inferior in flavour to those produced under natural conditions where the climate permits. Hot-house Grapes seldom possess the same flavour as those that produce the "bottled sunshine" of France. Again, it is the action of ultra-violet light on the cholesterol in organic tissue that produces the essential vitamins, and hence vegetables grown under glass which obstructs the passage of these rays, remain devoid of the very qualities on which their food value depends. It has further been shown that the absorption of the "actinic" or short wave-lengths of light, which, of course, include the ultra-violet, by the chlorophyl in plants, is responsible for their brilliancy and colour, both of bloom and foliage. It is possible that the action that takes place is akin to that which produces an erythema or irritation in the human skin when irradiated by ultra-violet light of short wave-length, and that the colour and brilliancy of blooms and foliage increase or wane according as the vital rays reach the plant or are obstructed. It seems obvious, following the analogy of human physiology, that the shorter the wave-length of actinic light, the greater the effect produced, and this is borne out by the well-known characteristic brilliancy of alpine plnats.

From these premises, the far-reaching possibilities of vita glass in greenhouses, in view of its unique property of transparency to the vital rays, becomes of very considerable interest to the horticulturist. Vita glass has a high percentage of quartz in its composition, and is therefore more expensive than the cheap glass that is usually utilised, but its greater tensile strength and thickness enables far larger sheets to be used, thus eliminating the cost of unnecessary frame-work. It is this last factor that accounts for by far the largest proportion of the total cost, and hence, at any rate for new construction, the total cost of vita glass should be little more, if at all, than its ordinary prototype.

The results that should, however, accrue—the eradication of weakness, acceleration of growth, increased warmth (owing to the additional percentage of heat rays that are also transmitted), and consequent economy in heating costs, and finer and richer blooms and fruits, should more than compensate for any additional outlay. Science has provided the means, and it may now be possible for horticulturists to defeat the restrictions imposed by our erratic climate, and our long and inclement winter. *H.*

MESEMBRYANTHEMUM.

(*Continued from p.* 33).

Conophytum Marlothii, N. E. Br. (Fig. 30).—Plant as received about ¾–1 inch high, consisting of a few lax and rather distant forked stems, each ultimate branch 4–6 lines long, gradually increasing in diameter upwards and 2½–3 lines in diameter at the top, densely clothed with somewhat smooth, closely imbricating sheaths, rather hard in texture, dark brown edged with whitish. Growths 3–4 lines long and 3–4 lines in diameter, obconic, circular or broadly elliptic at the nearly flat top (type F.), with a depressed orifice ¾–1 line long; surface smooth, glabrous, of a greyish glaucous-green, thinly sprinkled with separate dark green dots and the orifice surrounded by an elliptic dark green line or row of dots; when in active growth, if held at a proper angle to reflected light the dots (when viewed with a lens) are seen to be shining while the rest of the surface is opaque. Flowers not seen.

Little Namaqualand: Ugrabis Mountain, in the Richtersveld, Marloth 6941!

Of all the species sent to me by Dr. Marloth that he collected during his expedition to the Richtersveld, in Little Namaqualand, this humble species appealed to me as being the most distinct in its general appearance; I have therefore much pleasure in dedicating it to his memory as a slight but grateful acknowledgement of the aid and information he has on many occasions given me during my work upon these plants. C. Marlothii differs from all known species by its laxly-forked stems clothed with hard, smooth, brown sheaths, very different in character from the brown, grey or white friable sheaths that are usually found on these plants, and by its small, flat-topped growths, sprinkled with dots that shine when held at a certain angle to the light, while the remainder of the surface is opaque.

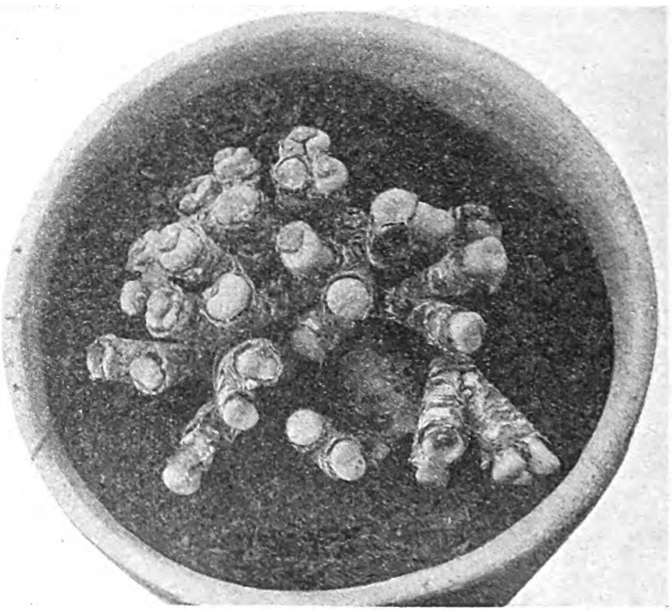


FIG. 30.—CONOPHYTUM MARLOTHII.

Natural size, as imported. Photographed by M. Fr. de Laet.

To a certain extent the growths of C. Marlothii resemble those of C. kubusanum, but in the latter species they are smaller, of a darker green, more crowded, and not on lax stems, and have friable greyish sheaths, and the dots are more numerous.

For the illustration of this species I am indebted to the courtesy of Monsieur Fr. de Laet.

C. Meyeri, N. E. Br. (Fig. 31).—I am now able to illustrate this species from an excellent photograph sent to me by Monsieur Fr. de Laet.

C. misellum, N. E. Br.—Growths small, 4–5 lines high, 2½–3½ lines in diameter, obovoid, elliptic or circular in outline viewed from above, convex at the top, with a slight notch at the orifice (type somewhat like E.), and a faint keel on each side of it; orifice ½-line long; surface smooth, glabrous, green, with a darker line along the keel and another outlining the lips of the orifice, and a few separate dark dots irregularly scattered over the top, but all these markings are rather indistinct, yet in full sunshine the line on the keel would probably be purplish. Flowers unknown.

Little Namaqualand: Witklip Poort, near Ugrabis, in the Richtersveld, Marloth 6933!

This small species is but little larger than C. saxetanum, N. E. Br., which it somewhat resembles in general appearance. Described from a living plant sent to me by Dr. Marloth.

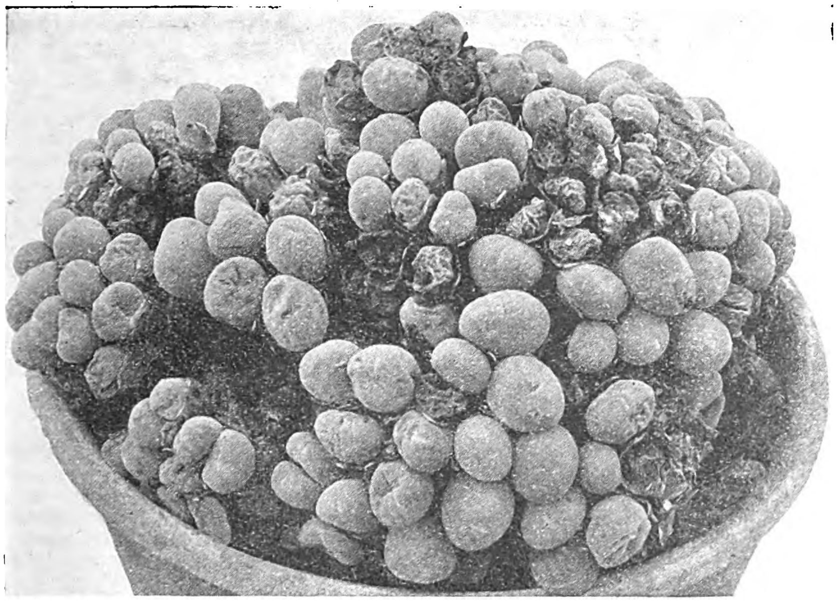


FIG. 31.—CONOPHYTUM MEYERI.

Natural size, as imported. Photographed by M. Fr. de Laet.

C. Muiri, N. E. Br.—Growths as received small, nearly as type E., 3–4 lines high and 2–4 lines in diameter, elliptic or nearly circular in outline and convexly flattened at the top, with a very slight notch at the centre and no trace of any ridge; orifice ¾–1 line long; surface smooth, glabrous, of a light glaucous-green or chalky-green colour, indistinctly marked with irregularly scattered dots of a slightly darker tint, usually separate, but on some growths here and there connected into lines and the orifice enclosed in an elliptic or diamond-shaped line of the same dark tint. Calyx-tube about 1½-line long and ¾ line in diameter, 4–5 lobed; lobes ¾ line long, ovate, reddish. Corolla-tube about as long as the calyx-tube; petals about 16, in 1–2 series, 1¼–1½ line long and about ¼ line broad, filiform-linear, obtuse, pale yellow. Stamens few, in two series, exserted from the corolla-tube. Style very short or almost absent. Stigmas 4, about ⅔ line long, filiform, erect, attaining to about the middle of the corolla tube.

Ladismith Division: Among stones and rocks on hillsides south of Touws Berg, Muir 883!

The small size, flattish tops and glaucous-green colour of the growths of this species as seen the first year after its importation readily distinguishes this plant from all others at present described. I am indebted to Dr. J. Muir for the living plants from which I describe, and am glad of the opportunity to associate his name with a member of this genus. I suspect, however, that after it has been in cultivation for awhile its size and, perhaps, appearance will have altered.

C. novellum, N. E. Br.—Growths as received 4–6 lines high, 4–5 lines broad and 4–4½ lines thick, obconic, elliptic or nearly circular, and at the same time faintly angular in general outline viewed from above, somewhat truncate in side view, but having a distinct ridge across the top transverse to the orifice and 2–3 somewhat angular bumps on each side of it; orifice ½–1½ line long, closed; surface smooth, glabrous, light green, sometimes with, sometimes entirely without a few rather indistinct separate darker green dots sparingly scattered over the top, and the orifice sometimes is very indistinctly outlined with a darker green line parallel to it on each side, but more often this outline is absent. Flowers unknown.

Clanwilliam Division: Near Klaver, Marloth 11899!

This species is distinguished from all others by the peculiar angular bumps upon the top of the growths. Described from a living plant received from Dr. Marloth.

C. obscurum, N. E. Br.—Growths 3–4 lines high, 2–3 lines in diameter the first year after importation; obconic, circular or elliptic in outline viewed from above, flattish on the top (type F., without the notch), with only the orifice itself depressed and no trace of a keel; orifice ½–¾ line long; surface smooth, but under a lens there sometimes appears to be a slight unevenness, glabrous, of a rather dark green sparingly marked with a few separate dots of darker green, but the orifice is not outlined with a darker colour in any way. Flowers not seen.

Little Namaqualand: Ugrabis Mountain, in the Richtersveld, Marloth 6938!

Described from a living plant received from Dr. Marloth. It is rather insignificant in appearance, but is quite distinct from all others known to me.

C. picturatum, N. E. Br.—Growths as received 3–4 lines high, 3–5 lines broad, and 2½–4½ lines thick, shortly obconic elliptic or nearly circular in outline, and flat or convex at the top (type E or F); orifice ½–1 line long, level with the general surface, not at all depressed; surface smooth, glabrous, purple on the sides, the top grey-green, prettily and rather copiously marked and the orifice outlined with dark green or purple, stout, irregular lines or chains of connected dots, which are more or less connected together in an irregular manner, but form no definite pattern. Flowers not seen.

Clanwilliam Division: Between Clanwilliam and Citrusdale, Miss Foote!

I have to thank Professor R. H. Compton for this very distinct species, which he informs me was discovered by Miss V. J. Foote, a former assistant in Kirstenbosch Botanic Garden.

It is one of the prettiest species known to me, and is easily recognised by the top of the growths being flat and covered with irregularly branched and connected rather thick lines of dark green or purple, according to exposure to sunshine. *N. E. Brown.*

(To be continued.)

NOTICES OF BOOKS.

A French Book on the Chrysanthemum.

This little brochure*, written in a helpful and practical style by one of the foremost French Chrysanthemum growers—Monsieur J. Lochot—will doubtless find a welcome with many hundreds of amateurs and small market growers of that most popular flower, the Chrysanthemum. Without being very ambitious (at ten francs it could scarcely be what publishers call "sumptuous"), it covers the ground amply, the text being greatly assisted by a number of good diagrams, and some photographic reproductions which are not quite so good. The various stages of cultivation are fully described and reasons for and against the different methods commonly employed are adequately discussed. As regards the comparative merits, for pot culture, of cuttings taken from pot plants or from the open ground, the author favours the latter, as being hardier and easier to manage, especially in the case of rather tender varieties. As, in France, the great bulk of pot Chrysanthemums are disposed of for the festival of All Saints (the 1st of November), the great object of market cultivation is to have the plants nicely in flower at the end of October, and every operation is timed to produce this result.

The subject of pests and diseases is fully dealt with, and some useful diagrams are included in this section. We are glad to note that the author lays stress on the useful part played by wild birds in keeping down insect pests, and on the folly of taking too severe measures against sparrows, which frequently have the effect of destroying valuable bird-allies. A few hints on decorating, and a list of the best varieties, bring to an end this serviceable little volume, which reflects great credit on author and publishers alike.

Blumen im Hause.

This volume of nearly three hundred pages† treats in an exhaustive manner of the subject of flower decoration in the house, and touches also on other matters which may be considered more or less cognate to the original theme. The author, Herr Willy Lange, is well-known in German horticultural circles as a writer of a number of books, alone and in collaboration. He is a nature-lover first and foremost; a technician of the first rank, and a successful garden-architect. All his conceptions of design are based on his passion for nature, and his influence on horticulture in Germany has, of late years, been considerable. *Blumen im Hause* is not merely a text book on flower decoration; in the twenty or so pages of notes in which the author, as it were, "lets himself go," he strays considerably outside the main purpose of the book, and discourses entertainingly on all sorts of subjects—the rococo in decoration, Japanese art, the pentagram in Nature, Mendelism and mutation, the nature of "style," and the anthropological concept of life. In the main portion of the work, however, the subject is closely adhered to, and the text is supplemented by a generous collection of photographic illustrations showing the use of flower decoration for every possible occasion. The author writes delightfully in one of his notes on the Japanese methods, and gives many charming drawings of Japanese flower decorations. These, however, have the unfortunate effect of making the photographs appear inferior and inartistic, especially such illustrations as Fig. 35, in which a plaid shawl forms part of a general effect in which Lilies and Roses are thickly massed together; Fig. 34, bowls of Narcissus bulbs with immensely long stems, like reeds, the tiny blooms at the top almost invisible; and 38, in which a Bamboo stem is shown, stuffed with Roses in a way which would tempt a Japanese floral artist to commit hara-kiri. More pleasing, because more unaffected, is a "gift-table" (Fig. 44) in typically

---

***Le Chrysanthème*. par J. Lochot. Paris, Librairie Agricole de la Maison Rustique, 26, rue Jacob. Price 10 francs (for England, 12 francs).

†*Blumen im Hause*. von Willy Lange. Leipzig, Verlag von J. J. Weber, RM. 18.00.

German fashion, in which a birthday candle-cake and a basket of eggs look comfortably at home with stiff bowls of Tulip bulbs and a Cactus plant, while festoons of green foliage round the edge of the white table cloth add a softening effect.

There is no doubt that books on the subject of flower decoration are needed, and it is a pity that so few people think it worth while to write on so important and so interesting a subject. Herr Lange's book will, without doubt, receive a warm welcome in Germany, where his work in the realm of garden-planning is already so well-known. It may be noted, however, that in spite of the influence of Lange and other nature-lovers, decoration in Germany still suffers from over elaboration; frequently half or a third of the flowers used would look better, because they could be more lightly and naturally arranged. Without slavishly trying to imitate Japanese and Chinese decorative designs (which would be unsuitable to the present European style of furnishing) much can be learnt from them, and most of all the fact that if each flower and leaf is made to yield its best effect, very little "massing" will be required. "Massing" is fatal to art in nearly all schemes of floral arrangement; but it is easy, and is therefore likely to persist.

The book is well-printed on art paper, strongly bound in covers of an appropriate moss-green colour, and contains a number of good coloured plates as well as black and white illustrations. The general appearance and get-up is attractive, and altogether, *Blumen im Hause* forms a notable addition to European garden literature.

EMULSIFIED OILS FOR THE DESTRUCTION OF INSECT EGGS.

It has generally been assumed, at any rate, in this country, that any chemical which could be used on growing fruit trees, even in the dormant period, as a means for the destruction of insect eggs, at such a strength as to be effective, would have a very detrimental effect upon the tree itself. Experiments carried out on large scales during the past two or three seasons, however, have shown that this assumption is somewhat erroneous.

Lime-sulphur, caustic soda and caustic lime have been extensively used during recent years in the dormant period, but it is very much open to question whether any have really substantiated the claims originally put forward as regards actual egg destruction. Unquestionably they are excellent specifics for cleansing the trees by the destruction of Moss, Lichen, etc., which act as hibernating quarters for both pests and certain diseases.

Lime, when applied hot, and freshly slaked, and as thickly as it is possible to spray with, does appear to either retard or prevent the hatching out of certain eggs. But cases have been frequently observed where the young larvae have managed to extricate themselves from eggs apparently well-covered with a good layer. "Case-hardening," however, cannot be taken as direct chemical destruction of the eggs. Again, lime-sulphur solution, although certainly caustic in its action, only appears to leave a finely divided film deposit of sulphur, which is not likely to disintegrate the chitinous covering of which the outer shell of the egg is composed. In the case of caustic soda, the final deposit, after exposure to air, will be carbonate of soda, which is readily soluble in water, so that causticity will rapidly disappear. The strength at which caustic soda is generally used would not be sufficient to cause a rapid breaking down of the egg chitin before carbonation takes place. It is, therefore, quite possible, with both lime-sulphur and caustic soda, that a stifling and case-hardening effect is produced which may either retard the ultimate hatching out of the egg, or even prevent this process taking place altogether.

On the continent, during the last few years, considerable attention has been devoted to the use of oil emulsions, particularly for spraying in the dormant season. The use of these emulsions has been adopted not only for the destruction of scale and hibernating insects, but as a means of egg destruction. The class of oils used varies somewhat in character, but generally speaking, those obtained from the distillation of tar seem to be favoured, probably on account of their plentiful supplies and comparatively low cost of production. It has been shown by various workers in the field of economic entomology that oils, having a boiling point above 250°C., show a gradual diminution in insecticidal value with increase in boiling point, but there is reason to believe that this property may be only characteristic of certain oils. Recent work carried out has certainly indicated that oils for this class of work must be of a definite specification, and that all fractions of tar distillates are not necessarily efficient as egg destroyers.

Another extremely important factor is the complete emulsification of the oils, so that the resulting product is water miscible, otherwise there is considerable risk of subsequent damage to the sprayed trees. In the United States the proportion of oil emulsion to water for spraying purposes varies with the different makes, but in all cases a much higher concentration is necessary than growers have hitherto used in this country, ranging from five per cent. to ten per cent. There seems little doubt that some insects' eggs are more resistant to this treatment than others, particularly those of the Winter Moth (Cheimatobia brumata). This may be due to the difference in thickness of the chitinous covering of the egg. The action of these emulsions seems to indicate a gradual disintegration of the chitinous covering, with absorption of the oils inside the egg, causing a coagulation of the contained protoplasm.

Recent work carried out in France and Germany has shown that the fraction obtained in the distillation of tar, known as green or anthracene oils, possesses very high egg-destroying properties when used as an emulsion. There is, however, one drawback in regard to this class of oil; its composition varies to an extent depending upon the class of coal used in the making of the tar. This has been borne out by the experiences with this oil in this country, and, in consequence, varied results in egg-killing have been recorded.

In the trade the various fractions obtained during the distillation process are designated as a general rule, as ammoniacal liquor, light oils, creosote oils, heavy oils and anthracene oils, and the quality of these is largely determined by the temperature of carbonisation of the coal during the "coking" process, and the subsequent fractionation of the tar. Coke-oven tar differs somewhat from gas-works tar, because in the former the main object is to secure as high a yield of chemical bye-products, such as sulphate of ammonia, benzol, etc., as possible, leaving as a residue a very hard and compact variety of coke which is used in the smelting of iron, etc. In the manufacture of gas-works tar the object is to obtain as high a yield of coal gas as possible which will give a maximum heating value in British Thermal Units or Therms, with a minimum of tar.

In the fractionation or distillation of tar the temperature rises; the first portions of the distillate contain water with which the tar is always contaminated to a greater or lesser extent, and depending upon the extent of any previous dehydrating process. As the temperature increases the lighter and more volatile oils begin to distil over and comprise light paraffin hydrocarbons, carbon bisulphide, thiophene, benzene, toluene, and other benzoid aromatic hydrocarbons; the fractions have fairly well defined boiling points, and this offers a means of separating them during the first distillation process which is usually followed by a further redistillation of some of the lighter boiling fractions.

Between three and four hundred substances have been found in coal tar of which about 150 have been estimated and ninety or so have been definitely isolated. These substances can be broadly divided into neutral bodies, acid oils and basic substances, and each are characterised by the absence or presence of oxygen, sulphur or nitrogen. It is a remarkable fact that out of the large number of substances present in tar, only four appear to have been obtained in a state of high degree of purity on a large factory scale. They are: benzene, toluene, naphthalene and phenol. The creosote oils contain anything up to forty to fifty per cent. of what are known as the phenols, of which carbolic acid boiling at 183-4°C. is the lowest member of the series, together with a certain amount of creosote salts or naphthalene.

The phenols or cresols form the basis of most of the modern disinfectant solutions used to-day, and have played an important part as winter washes in the past. Under laboratory conditions a seven-and-a-half per cent solution of emulsified cresylic acid (cresol) has been found to give 100 per cent. kill of silk worm eggs, but under out-door conditions the results have been most disappointing. This is, no doubt, due to either the vaporisation of the thin film of oil from the egg surface over a period of time, or to the washing off of the emulsion by rain soon after spraying, and before it has had an opportunity of drying out. This may explain the inefficacy of ordinary emulsified creosote oil as an ovicide under commercial conditions. *Theodore Parker.*

(*To be continued*).

FOREIGN CORRESPONDENCE.

BUCAREST FLOWER SHOW.

At the annual show of fruit and flowers which was held in Parcul Carol, on October 31 to November 4, 1926, much regret was expressed at the absence of H.M. The King of Roumania, owing to illness, and H.M. Queen Marie, who was away in America, as this is a great fête and exhibition for Bucarest, which is looked forward to for many months. The weather was splendid, the temperature being 30° Réaumur in the shade. The Roumanian Horticultural Society had the pleasure of the presence of H.R.H. Princess Elena, who opened the show, and was conducted round by the President, Mr. Charles Farando, and Mr. Garoflid, Minister of Agriculture. Mr. Businocescu, Mr. G. Nicoleanu, General Coanda, General Condescu, Princess Bibesco, and the Austrian Minister and M. Savian Badulescu were also present.

The attendance was large and resulted in a good balance on the right side, which was very acceptable as the society desires to build a hall in which to hold its shows at any time in Bucarest. Every year the show becomes more interesting as some new novelty or different arrangement takes the public eye. This year vegetables were much more largely shown, and great credit was given to the Army and the Schools for the quality of vegetables they displayed. It was regrettable, however, that so few private gardens were represented, along with the nurserymen, to encourage gardening in Roumania.

The principal exhibits were from the gardens of the Palace of Mogosoëa, H.H. Prince G. V. Bibesco, managed by Mr. J. W. Funge, who takes a keen interest in introducing new plants into Roumanian gardens, and succeeded on this occasion with a grand display of Carnations on a table of five metres length, with one end filled with new Dahlias. Grapes were also shown in style and quality that has never before been equalled in Roumania; the varieties were Marshal Gallien, Gros Colmar, Muscat of Alexandria, Madresfield Court and Lady Downe's Seedling (Gold Medal). M.M. Stefan and Auton Demitrievici, nurserymen, showed a finely arranged group of Begonias, Ficus, Asparagus varieties, and very large pink Chrysanthemums (Gold Medal). Mr. Toma Kraus, Carnation specialist, Codlea, Brasov, showed Carnations in great variety and good form mixed with Cyclamens, and edged with Ferns (Gold Medal). M.M. John Preidt and Co., had a grand display of Cyclamens with Lilium longiflorum (Gold Medal). Mr. J. Ollerer, Targul Mures, made a fine show with Primula obconica, very large and well-grown, edged with Cyclamens carrying over fifty blooms on one plant (Gold Medal). Mr. Théophile Scheidegger, nurseryman, Bucarest, displayed a round group of the finest decorative plants, well-arranged, including many new varieties (Gold Medal).

From the Royal Palace gardens, managed by Mr. F. Rebhuhn, came an exhibit that filled the whole end of the chief pavilion; it consisted of decorative plants, groups of Cyclamen, Primulas, and some very fine white Bouvardias (Hors Concours). Mr. Alois Kaurek, Bucarest, put up a very fine arrangement of packets of seeds, conserved fruits and different kinds of implements (Gold Medal).

In the No. II Pavilion, Messrs. Charles Farando and Sons, Bucarest, filled one side with Palms, Ferns, and other foliage plants, also groups of Chrysanthemums of great size and colour; great credit is due to their Chrysanthemum specialist Mr. Maes, who, year after year, brings his plants to perfect condition. The varieties included Kara Dow, Paul Oudot, Mrs. Kelly, Pink Turner, Captain Fox and Ville de Paris. This firm also showed fruit trees in good, clean condition (Gold Medal and Compliments). The rest of the Pavilion was filled with vegetables of good quality by the Horticultural Schools and the Army Vegetable Department.

The third Pavilion was entirely filled with fruits grown out-of-doors; the quality was very good indeed, but many of the exhibits were poorly arranged. Awards were given according to merit. *J. W.*

FRUIT REGISTER.

PEAR GLOU MORCEAU.

At the present time this Pear stands out as one of the most valuable fruits, and its habit of ripening slowly is not the least of its virtues. A tree I have on a west wall never fails to produce a crop which usually requires some thinning. Both in France and in this country this variety is not considered one of the hardiest, but this question-begging word has to be carefully considered. Trees in the open do not, with me, produce good fruit, but the variety is hardy in the sense that with the protection of a wall, fruit can be produced quite well, even in the north. I have recently had very fine specimens sent me from a correspondent in Aberdeen, who finds it one of his most reliable varieties. It would be interesting to know if any of your readers have been successful so far north as this. *Edward A. Bunyard, Maidstone.*

APPLE NORFOLK BEAUTY.

Norfolk Beauty is an excellent culinary Apple, in season from October to December; the fruits are large, of a rich golden tint and somewhat resemble Warner's King in general appearance, but are of a richer colour.

The tree makes a fine bush or pyramid and is a regular cropper; it is self-sterile.

This fine Apple was raised by Mr. Allen, of Gunton Park, from Waltham Abbey Seedling crossed with Warner's King, and it has proved, in the west of England, a variety of great value. *Ralph E. Arnold.*

APPLE ALLINGTON PIPPIN.

Allington Pippin is, in many districts, a really good dessert Apple, but although it crops and grows well here, its flavour is second rate, and only pressure of other work has prevented me from heading our trees back and grafting them with another sort.

About a year ago, I was remarking this to a friend of mine who had also formed the same opinion of it, and he advised me to use the fruits for cooking as he had done. I am more than pleased that I followed his advice, as I find the fruits are excellent when used this way. *T. B., Newbury.*

APPLE ARTHUR TURNER.

This variety of Apple is one of the best of the newer culinary sorts, and gained the R.H.S. Award of Merit on September 24, 1912.

The fruits are somewhat conical in shape and about as large as those of Lord Grosvenor. The tree makes robust growth and crops freely; the fruits are in season from November to December. The quality of this new Apple when cooked is exceptionally good, and the variety may be recommended to those who intend to add a few new sorts to their collections. *T.*

VEGETABLE GARDEN.

COMMON SCAB OF POTATOS.

Common Scab of the Potato spoils the appearance of the tuber and affects, to some extent, the cropping capacity of the plants. I have never encountered any kind of soil treatment which is remedial, and spraying is out of the question. As the malady was rather prevalent in the soil of a demonstration plot under my charge, I decided, early last year, to plant the seed tubers on humus in the hope that this material would act as a decoy for the fungus. Well-rotted leaf-mould was conveyed from a wood near-by and spread in the rows at planting time. The tubers were planted on this material and the crop, when lifted, was almost free from scab. There was scab here and there on the tubers, but it had to be looked for. The food in the leaf-mould was supplemented by a dressing of inorganic fertilisers.

Great credit is due to Dr. Millard of Leeds University for his work in this connection, and to him I am indebted for the knowledge of the treatment which I possess. Lawn mowings are said to have the same beneficial effect as leaf-mould, and as grass mowings are plentiful in most gardens, there seems to be no reason why gardeners should be troubled with common scab on their Potatos. *Geo. H. Copley, N.D.H.*

EARLY CARROTS IN FRAMES.

In the production of early crops of Carrots under glass a mild, long-lasting hot-bed is essential, for, while the assistance of artificial warmth is necessary, at no time should the heat be very strong. Moderately dry leaves furnish excellent material for a hot-bed, and those who have an ample supply may employ them exclusively, but where stable manure can be obtained, it should be brought into requisition and used in conjunction with the leaves. Where leaves are not available, some little additional care will be necessary in the formation of the beds, because of the tendency of stable manure to ferment quickly, and as soon lose its heat, to the detriment of the crop. In this case, it is wise to collect any available littery material and other garden refuse to mix with the manure. Adding such refuse to other fermenting material is, it may be added, an excellent way of converting it into manure and rendering it available as a dressing for the kitchen garden or flower borders later.

Leaves alone do not require any preparation, and they may be formed into beds direct from the heap, be covered at once with soil, and the seeds sown without any risk of injurious results. With stable manure and litter some preparation will be necessary to ensure thorough mixing, but, if the material is well shaken out when thrown into a heap, once turning should suffice to bring it to a suitable condition for use. At this season of the year it does not often happen that fermenting materials will require moistening when being prepared for the beds, but if there is any tendency to dryness it will be necessary to sprinkle it with water when building up the heap. In preparing beds in brick-built pits it will suffice to fill them to within about six inches of the glass with the fermenting material, taking care that this is thoroughly consolidated to ensure a steady and lasting warmth and prevent undue sinking of the surface from the glass. The beds for portable frames should be made large enough to project two feet beyond the edges of the frame, as a more uniform heat will then be maintained.

Immediately on the formation of the bed the frame should be placed in position and the surface covered with about six inches of light and moderately rich soil. Old, sandy soil from the potting shed, to which a little clean leaf-soil may be added, answers admirably for this purpose. The seeds may be sown broadcast or in drills, but broadcast is the more economical system if sown regularly and not too thickly.

The management of the frames after sowing is a very simple matter and may be summed up in a few words. Until the plants begin to make their appearance, no ventilation will be required beyond what is necessary to allow excessive atmospheric moisture to escape. Subsequent moderate ventilation will be required when the weather is favourable. It follows, as a matter of course, that the soil must be maintained in a moist condition without being at any time excessively wet, and that the frame must be covered with mats or other protective material in frosty weather. The best varieties for frame culture are Early Gem, Inimitable Forcing, Earliest French Horn and Golden Ball. *W. Auton.*

HOME CORRESPONDENCE

Failure with Celery.—With reference to the letter by *E. O., Stockbridge*, in your issue of January 1, it may interest some of your readers to hear how my gardener, Mr. C. Crane, successfully fought the disease here. Our soil is clay, well broken up and mixed with burnt garden refuse. The seeds (Sutton's A.1., red; Dwarf Gem, white; and Solid White) were sown in the early spring. The earliest seedlings were pricked out into boxes, and the second batch on a hot-bed; in both cases the tap-root of each seedling was removed. Disease broke out in both lots and the diseased leaves were pricked off. In due course, the Celery was planted out in three double rows, about thirty yards long, the plants being quite one foot apart; farmyard manure was used in the trenches, with burnt garden refuse, mixed with a little chicken manure, as a top-dressing. The disease was still prevalent in the trenches, and two barrow-loads of outside leaves were removed and burnt. Spraying took place early in June (two pounds blue stone, two-and-a-half pounds soda, ten gallons water), and spraying was repeated every fortnight, until the foliage looked quite blue. The spray was applied by means of a knapsack apparatus, the nozzle being turned up so as to moisten the underside of the leaves thoroughly. The resulting crop is very good; I am sending you three sticks in a separate package as a sample. *R. U. H. Buckland, The Locks, Hurstpierpoint.*

[The heads of Celery were of fine size and excellent in every respect.—Eds.]

Biennial Cropping of Apples.—I was surprised to see *Market Grower* (page 17) advocating the belief in biennial cropping of Apples. I have read his articles on the "Market Fruit Garden" in *The Gardeners' Chronicle* for years, also his predecessor's, who wrote under the name of *Southern Grower*, and considered the advice of both well-timed and to the point. *Market Grower* states that thinning the crop in any experiment he has heard of, has failed to check the tendency to biennial cropping. I can give him an instance of two trees of King of the Pippins which grew on different sides of a path; both had been planted at the same time and were fairly large trees, one fruited one year and the other the next. I thinned the branches and all weak spurs first, then thinned the crop to a very light one. After three years' treatment both trees fruited annually and carried what I consider good crops. My own opinion is that when thinning is done it is not drastic enough; the tendency to leave too many fruits in case some drop is always paramount in the worker's mind. If it is carried out as a routine practice on *Market Grower's* farms he is lucky if he finds subordinates willing to thin sufficiently to permit trees to bear a crop the following year. Any fruit tree, if over-cropped, will take a rest the following year to recuperate, just as a man who, if overworked, would have to rest. Has *Market Grower* noted how orchard house trees bear annually when under glass protection and not exposed to the vagaries of the weather? No doubt manuring helps them as they are generally manured and well looked after every year. Manuring is not a cure for biennial cropping unless drastic thinning is practised at the same time. A man has to eat and digest his food before it can do him any good; the same applies to manuring soil. The soil has to receive and "digest" the manure before it becomes plant food. *Grigor Roy.*

SOCIETIES.

ROYAL HORTICULTURAL.

January 11.—The first meeting of the year was responsible for a bright and attractive show. Orchids were the principal feature, and of these there were groups of splendid plants from the principal trade and amateur growers.

The Orchid Committee recommended two First Class Certificates and six Awards of Merit. There was only one novelty before the Floral Committee but it did not receive an award, nor did the Fruit and Vegetable Committee recommend any award to a novelty. There was a magnificent exhibit of vegetables from Messrs. Sutton and Sons. The chief general flowers were Euphorbia pulcherrima, in a large group, and Carnations.

Orchid Committee.

Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Secretary), Mr. C. J. Lucas, Mr. F. J. Hanbury, Mr. H. H. Smith, Mr. A. Dye, Mr. H. T. Pitt, Mr. A. McBean, Mr. J. Cowan, Mr. G. E. Shill, Mr. H. G. Alexander, Mr. T. Armstrong, Mr. S. W. Flory, Mr. Stuart H. Low, Mr. E. R. Ashton, Mr. J. Cypher and Mr. F. R. Sander.

First Class Certificates.

Odontoglossum Vivien.—From H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr. Mr. Thurgood). A beautiful hybrid with a tall spike of thirteen large, white flowers, each segment attractively marked with purple-red.

Cypripedium Chardwar var. Perfection.—From G. F. Moore, Esq., Chardwar, Bourton-on-the-Water, Gloucestershire (gr. Mr. W. H. Page). One of the largest of Cypripediums; the broadly-developed dorsal sepal is porcelain-white with dark purple dotting arranged in vertical lines; the petals are light greenish-yellow with brown reticulation.

Awards of Merit.

Cypripedium Hancar var. George Corser (Conference × Major Hanbury Carlile).—From G. F. Moore. Esq. A charming hybrid in which the roundly-formed, dorsal sepal is white, with a small, greenish base, and some slight spotting. The petals and labellum are honey-yellow.

Cypripedium Chardmore var. W. H. Page.—From G. F. Moore, Esq. A noble flower with an unusually large, white dorsal sepal, with slight spotting on the central area, and a green base. The petals are broadly developed, veined and suffused with brown.

Cypripedium Judah, Westonbirt var. (Alabaster × Bronzino).—From Messrs. H. G. Alexander, Ltd., Westonbirt, Tetbury, Gloucestershire. A handsome flower in which the dorsal sepal is white with a crimson-flushed centre. The petals are yellowish, tinged at the tips with violet; the labellum is shaded with reddish-brown.

Cypripedium Renown (Eurybiades × Christopher).—From Messrs. Charlesworth and Co., The large flower has the dorsal sepal flatly displayed, white on the upper two-thirds, the lower part light green, and with slight spotting. The petals are honey-yellow with brownish markings.

Odontonia Joiceyi var. Aleppo (Odontonia Pittiae × Odm. Tityus).—From Messrs. Charlesworth and Co. The principal feature is the rich purple colour of the broadly developed labellum. The dorsal sepal and petals are purplish tinged, with crimson.

Sophro-Laelio-Cattleya Isabella var. perfecta (C. Fabia × S.-L.-C. Marathon).—From Messrs. Cowan and Co. This plant bore a couple of charming flowers of soft cerise colour; the labellum is bordered with purplish-crimson and has a golden centre.

Preliminary Commendation.

Vuylstekeara Elatior (Vuylstekeara Aspasia × Odm. Miguelito).—From Messrs. Charlesworth and Co. An immature seedling of much promise. The plant bore a single flower of uniform rose-cerise colour; the labellum is very much larger than the other segments.

Cultural Commendation.

To Mr. John Evans, Colwyn Bay, for a finely cultivated specimen of Cypripedium nitens-Leeanum var. Becktoniae, with seventeen fully developed flowers.

Mr. F. W. Thurgood (Orchid grower to H. T. Pitt, Esq.), was awarded a Bronze-Lindley Medal for a superb example of Eulophiella Rolfei (Peetersiana × Elizabethae), with an erect spike of thirty buds and flowers. A First Class Certificate was given to this hybrid on February 27, 1917.

Groups.

The principal group was the superb collection of Cypripedium hybrids from G. F. Moore, Esq., V.M.H., Chardwar, Bourton-on-the-Water, every plant of which has been raised in his garden. The beautiful Cypripedium Sir Trevor was seen in three distinct varieties, while C. Gwen Hannen was staged in several forms, one bearing the varietal name album, in which the dorsal sepal is white, except for a small yellow base. The F.C.C. variety of C. Perseus and a richly-coloured flower of C. Memoria F. M. Ogilvie were seen to advantage. Two specially fine varieties of C. Chrysostum were named respectively Grace Darling and Amy Moore. The front part of the group was prettily formed of the pure white C. Boltonii, and the bright yellow Oncidium cheirophorum.

H. T. Pitt, Esq., Rosslyn, Stamford Hill, had an interesting group in which were arranged the rare Epidendrum Laucheanum, Eria globifera, the large-flowering Lycaste Skinneri var. Mrs. Hamilton Smith, Cymbidium Tracyanum, C. Alexanderi, with yellowish flowers, and, in the centre, a well-grown plant of Coelogyne Mooreana, with three spikes of white flowers.

Messrs. Charlesworth and Co., staged an extensive group, the central part of which contained a large variety of Miltonia Bleuana, Trichopilia fragrans and Cypripedium Arthurianum. Fine Cattleyas were shown in C. Tityus and C. Octho (Octave Doin × Clotho), while Odontoglossum Wilckeanum aureum had a long spike of golden-yellow flowers, and Odm. Agapetum one of red-coloured flowers. A pretty hybrid was seen in Odontioda Joiceyi, and a richly-coloured one in Sophro-Laelio-Cattleya His Majesty. Laelio-Cattleya Momus formed a good example of what can be accomplished by breeding from Laelia pumila.

Messrs. Cowan and Co. staged two novelties in their group, one being Cymbidium Chloe (Gammieanum × Doris), the other C. Margaret (insigne × Sibyl). In the centre was Cattleya Zora (Gaskelliana × Percivaliana) a useful mid-winter hybrid; Brasso-Cattleya Nestor, with flowers of large size; and B.-C. Menda, pure white. In the back row were two fine plants of Zygopetalum Mackayi and the now uncommon Cypripedium Curtisii exquisitum. A handsome Cattleya was staged in C. Woltersiana, and a pretty Cymbidium in C. Phillida.

Messrs. Black and Flory arranged an effective group containing Cypripedium J. M. Black, C. Glorita, golden-yellow and C. Norman (Senator × Persus). A plant of Brasso-Cattleya Alderman bore large flowers of rose-pink colour, and another of Laelio-Cattleya Edzell had blooms of rosy-mauve. Among the hybrids derived from Sophronitis grandiflora were Sophro-Cattleya S. W. Flory and S.-C. Wellesleyae. The flowers of Sophro-Laelio-Cattleya Heatherwood were more richly coloured than usual.

Messrs. Sanders had an interesting group of species and hybrids. The former comprised Cirrhopetalum gracillimum, C. Makoyanum, C. breviscarpum and Bulbophyllum Watsonianum. Well-flowered plants were also staged in Vanda Watsonii and Epidendrum fragrans. Laelia autumnalis and Cymbidium Doris made a pretty effect, as also did Odontoglossum Rossii, when massed together. In the front of the group were many of the best Masdevallia species, One other noteworthy plant was Lycaste Skinneri var. Adonis.

Messrs. Stuart Low and Co. showed Dendrobium Cymbidioides, with ten spikes, Pleurothallis Roezlii, the showy Laelio-Cattleya Firminii, L.-C. luminosa aurea, with yellow sepals and petals, L.-C. Linda, very pretty, and Odontioda Wilsonii. A special feature was the fine strain of Brasso-Cattleyas, the best of which were named Hannibal and Juliet, respectively. Cymbidium Schlegelii proved the decorative value of its section.

Sir Jeremiah Colman, Bart., Gatton Park, Surrey (gr. Mr. J. Collier), exhibited many interesting varieties, including Bulbophyllum lemniscatum, Angraecum maxillare and Cirrhopetalum refractum, commonly known as the "Windmill Orchid." Other plants were a large specimen of Masdevallia tovarensis, Dendrobium bellatulum, and a couple of distinct varieties of Masdevallia Chimaera.

Baron Bruno Schroder, Englefield Green, Surrey, exhibited a number of very fine, cut spikes of the beautiful Calanthe Harrisii, the pure white flowers being much appreciated at this season of the year.

Mr. Harry Dixon, Wandsworth Common, staged several attractive Cypripediums, Odontoglossum Wilckeanum aureum and Brasso-Cattleya Nestor, the last with large flowers of rose-pink colour.

Messrs. A. J. Keeling and Sons showed Cypripedium Elise, with bold, dark spotting. C. Memoria F. M. Ogilvie, and the F.C.C. variety of C. Florence Spencer.

Messrs. J. Cypher and Sons showed Cypripediums finely, including Queen of Italy, Nubia, Archie Neil, and one named Miss Cann, with no fewer than fifteen flowers. The beautiful Cypripedium Moonbeam was in the front row, along with Angraecum distichum.

Lady Leon, Bletchley Park, showed a Cypripedium hybrid between Hercules and Lyon.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. Arthur Turner, Mr. H. R. Darlington, Lady Beatrix Stanley, Mr. H. J. Jones, Mr. J. M. Bridgeford, Mr. R. Findlay, Mr. W. H. Page, Mr. M. C. Allwood, Mr. Donald Allan, Mr. E. R. Janes, Mr. A. E. Vasey, Mr. James B. Riding, Mr. W. B. Gingell, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mr. W. P. Thomson and Mr. Charles E. Pearson.

Section B.—Mr. Gerald W. S. Loder (in the chair), Mr. W. G. Baker, Mr. F. G. Preston, Mr. L. R. Russell, Mr. T. Hay, Mr. Charles T. Musgrave, Mr. G. H. Wilding, Mr. Reginald Cory, Mr. W. B. Cranfield, Mr. G. M. Marsden-Jones, Mr. James Hudson, Mr. W. J. Bean, Mr. G. Yeld, Mr. E. A. Bowles, Mr. R. C. Notcutt, and Sir William Lawrence, Bt.

Groups.

A very large group of Euphorbia pulcherrima varieties, (Poinsettias) shown by the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree, made a bright display at the end of the Hall. In addition to a great many of the scarlet species there were a goodly number of the pale rose (E. p. rosea carminata), and the white varieties. Surmounting these showy plants were three large and well-grown specimens of Kentia.

With a comparatively few plants of Camellia, Hippeastrum, Acacia, Cyclamen and Primula obconica, surrounded with green moss, Messrs. Stuart Low and Co. made a very attractive display. Messrs. L. R. Russell, Ltd., had excellent little plants of Aphelandra squarrosa, A. aurantiaca, Azalea indica varieties, and pretty little bushes of Oranges in full fruit.

Spring flowers, shown by Messrs. Carter and Co., included large baskets of white Hyacinths, Narcissus Grand Soliel d'Or, Primula sinensis in various colours and also the graceful stellata varieties. Messrs. Bound and Son staged excellent plants of Lachenalia Boundii and Asparagus plumosus Boundii, both of which received Awards of Merit in December, 1925. Even at this time of the year, the graceful Asparagus plants were growing vigorously, and the Lachenalia flowers were of rich, deep coral-red colour.

Carnations were shown in good quality by Messrs. C. Engelmann, Messrs. Stuart Low and Co. and Messrs. Allwood Brothers. The first-named had showy vases of Saffron, Topsy, Jazz and Spectrum. Messrs. Stuart Low and Co. gave special prominence to large vases of Sybil, Brilliant and Spectrum, while, in addition to vases of perpetual flowering Carnations, Messrs. Allwood Brothers staged many flowers of their Dianthus Allwoodii in various colours. Many bunches of fragrant Violets were shown by Mr. J. J. Kettle.

In a well-arranged rock garden, Messrs. Wm. Cutbush and Son displayed various shapely Conifers, with groups of Bulbocodium vernum, Iris Histrio, Primula Wanda and other spring flowers. Messrs. J. Cheal and Sons set up a low rockery and planted it with Primula malacoides, Eranthis cilicia, Scilla sibirica alba and Galanthus Elwesii.

The Orpington Nurseries Co. exhibited a valuable selection of shapely little Conifers, such as are planted in rock gardens. The principal genera were Cupressus, Juniperus, Abies, and the garden genus Retinospora. Mr. J. Klinkert set out a collection of topiary specimens in Box and Yew.

The exhibits of garden sundries included an exceedingly attractive span-roofed greenhouse erected by Messrs. Boulton and Paul, which Mr Clarence Elliott filled with a goodly collection of alpines in pots. Messrs. Thomas Gunn, Ltd., had various cutting tools of good appearance. The Chase Continuous Cloche Co. had various samples of their speciality, and Messrs. Abbott Brothers showed many of their bird-nest boxes.

There were a great many paintings of flowers and garden scenes. The chief exhibit was by Mr. Frank Galsworthy, who included studies of Orchids, Narcissi, Irises, Freezias and general garden flowers.

Fruit and Vegetable Committee.

Present : Mr. C. G. A. Nix (Chairman), Mr. H. S. Rivers, Mr. P. C. M. Veitch, Mr. P. D. Tuckett, Mr. W. F. Giles, Mr. E. Beckett, Mr. A. Bullock, Mr. A. C. Smith, Mr. A. Poupart, Mr. G. Kelf, Mr. H. Markham, Mr. E. A. Bunyard and Mr. A. N. Rawes.

Three seedling Apples were submitted to the Committee for award from Mr. J. S. Peeke, Chalmleigh, Devon; Mr. J. C. Ibell, Stony Stratford, and Mr. W. J. Boyce, Norfolk, respectively. None was considered any advance on existing varieties of similar season and type.

Mr. E. Beckett, Aldenham House Gardens, Elstree, showed specimens of Artichoke Inseau, which variety, after being grown at Wisley, was highly commended at the previous meeting.

Messrs. Sutton and Sons, Reading, staged a remarkably fine collection of almost every kind of vegetable that the kitchen garden affords at this time of the year. There were 140 dishes of distinct kinds and varieties, each being a perfect sample of its type. The general effect of the exhibit was very imposing, as not only was the quality superb, the grouping was done with great skill, the great variety of colour in the various subjects being utilised to the fullest advantage. Broccoli Early White, Winter Mammoth, and Christmas White were prominently displayed along with superb Brussels Sprouts of the varieties Dwarf Gem, Fillbasket and Exhibition. Exceptionally fine specimens of Ailsa Craig Onions were arranged in the centre of the group, and other Onions shown well were Crimson Globe and A.1. Extraordinarily fine Tomatos, Parsnips and Carrots, Potatos and Cabbages were also included. Among the forced vegetables were splendid Seakale, Asparagus, Chicory, Endive and dwarf French Beans. Many visitors were attracted by the fine fruits of the "Tree Tomato" (Cyphomandra betacea). Variegated Kales were used as decorations on the stand.

Messrs. G. Bunyard and Co., Ltd., Maidstone, staged a splendid collection of Apples and Pears, many of the varieties—there were seventy-six in all—being little-known sorts. Among the outstandingly good samples we noticed Sandling, Pederstrup Reinette, Challey's Kernel, Golden Delicious, Edward VII, Lord Burghley, Cutler Grieve, Wagener and Brownlee's Russet. Of the Pears, Catillac and Comte de Paris were prominent varieties. In a season that will go down in history as a poor one for Apples, this display by Messrs. Bunyard was particularly meritorious.

Obituary.

H. C. Dresselhuys.—It is with great regret that we record the death, on the 16th of December, of Mr. H. C. Dresselhuys, of The Hague, Holland, President of the Netherlands Gardening Council. He was well-known as a grower of Dahlia novelties, of which he raised a great number.

Sir Benjamin Faudel-Phillips, Bart.—We regret to record the death, at Balls Park, Hertford, on January 11, of Sir Benjamin Samuel Faudel-Phillips, the second baronet. For some time past, Sir Benjamin had been in indifferent health, and his death at the comparatively early age of fifty-five years is a distinct loss to gardening in this country, for he had an enthusiastic love of horticulture and, with such a skilful gardener as Mr. F. W. Fitch, made his gardens at Balls Park among the most beautiful in the country. He was unmarried, and is succeeded by his brother, Mr. Lionel Faudel-Phillips.

W. A. Miller.—Mr. Henry Miller, of Messrs. Carter Page and Co., sends us information of the death of his brother, Mr. W. A. Miller, recently residing in Canada, and at one time a contributor to these pages. Mr. W. A. Miller was born in 1854 and entered the service of the late Earl of Bective as gardener at Underley Hall, Kirkby Lonsdale, Westmoreland, in 1878; after the death of the Earl, he continued his service with Lady Henry Cavendish-Bentinck until 1924, when he retired and went to Canada to join his three sons who are fruit farming in Ontario. He passed away at St. Catharines, Ontario, on December 6, 1926, after one day's illness, aged seventy-two.

F. Petersen.—We regret to learn of the death, on the 5th of December last, at the advanced age of eighty, of Herr August F. Petersen, the well-known nurseryman and florist of Hamburg. In November, 1846, Petersen took his first lessons in practical horticulture in his father's nurseries at Plön, in Holstein, and later increased his knowledge and experience by travelling. After the war of 1870-1, he established a business in a new suburb of Hamburg, where there was much scope for his talent for laying out new gardens; he also had a florist's shop, in which he was assisted by his wife, who was very clever in all branches of the art. Good fortune attended all his efforts, the business grew and prospered, and a few years ago he had the pleasure of celebrating the fifty-years' jubilee of his entry into business on his own account in a large and happy party of his own children and grand-children. Herr Petersen was popular as well as successful, his kindly nature and warm heart endearing him to all with whom he came in contact. He was devoted to his craft, and was a true gardener in the best sense of the word. His sons will carry on the business of which their father so well established the foundations.

GARDENING APPOINTMENTS.

Mr. W. G. Crockett for the past six years gardener to Joseph Shaw, Esq., K.C., Kentchurch Court, Near Hereford, as gardener to the same gentleman at Adderbury House, Banbury, Oxon. (Thanks for 2/6 for R.G.O.F. Box.—Eds.)

Mr C. Fletcher recently gardener to R. O. Fordham, Esq., Broom Hall, Biggleswade, and previously gardener to Frances, **Countess of Warwick**, Easton Lodge, Dunmow, as gardener to The Governors of Stowe School, Stowe, Buckingham.

Mr. E. H. Griffiths who has travelled for Messrs. W. Cutbush and Sons, Ltd., during the past five-and-a-half years, has been appointed representative in the South-western Counties for Messrs. James Carter and Co., Seedsmen to His Majesty the King, Raynes Park, London, S.W.20.

ANSWERS TO CORRESPONDENTS.

Flowers to follow Chrysanthemums.—*M. C.* (*East Lothian.*) Your greenhouse of sixteen feet by thirty feet, is so small for commercial gardening that we should imagine it would pay you better to keep it well-filled with bulbs after the Chrysanthemums, than try to grow three or four other crops, especially as the temperature you maintain in it is only 60°. It is more economical to have a lot of one or two crops than small parcels of several crops. However, if you can sell Myosotis, early-flowering plants could be brought on in the house. Christmas Roses (Helleborus niger) might also be tried. A temperature of 65° to 70° is best suited to Cress. Early short, round Carrots, like Grelot, and frame Radishes and early Cabbage Lettuces should do well, if you can make up beds of rich soil; and Mint should prove a good early crop. But your house will not be able to accommodate them all. Commercially, we should choose Mint and Radishes after the bulbs.

Names of Plants.—*W. H. W.* The weed on the lawn is Cerastium vulgatum or Mouse-ear Chickweed. It occurs in every county of Britain, and is dispersed over great parts of the northern hemisphere of the Old World. The plant is perennial, a frequent pest of lawns, and the creeping, barren shoots are so interlaced with the grass that they cannot be pulled up or spudded out. The leaves are so protected by hairs that repeated applications of lawn sand or sulphate of ammonia may be necessary to reduce the weed. The remedy is most effective in dry weather, when the grass also is dry.

Vine Border.—*H. W.* The depth of the border in your span-roofed vinery should be two feet six inches, when settled down, as a border less than this depth is apt to dry out quickly and also requires much greater care and attention in watering to maintain the proper degree of moisture. On the contrary, a deeper border often becomes too wet, the roots penetrate deeply and disease follows. Much depends on the nature of your soil; in wet and cold, clayey soils it is advisable to cement the bottom of the border to keep the roots from descending; this cement base should have a gentle slope to the outlet to carry the water away freely. Washing of the walls with cement should be sufficient. Over the base place nine to twelve inches of rough bricks or similar materials, lay drain pipes amongst the drainage and cover with lime rubble, as a thorough system of drainage is of the utmost importance. On cold soils a raised border has many advantages, being warmer and dryer, but a great deal depends on the construction of the house and other circumstances. On no account make up the border all at once, three feet or four feet wide is ample for the first two years, adding to the border every alternate year. Good Grapes may be grown in any good garden soil, but the soil best suited to the requirements of vines is a brown, calcareous loam with other proper materials added, such as burnt earth, lime rubble, wood-ash and charcoal. Lay turves grass-side downwards over the drainage, and also to form the front wall; chop up other turves roughly and to each ton of loam add one hundredweight of coarse bone-meal, half-hundredweight of vine manure, a little charcoal, and the other ingredients according to the quality of the loam; as a matter of course, heavy loams require more lime-rubble than sandy loams. Mix the compost thoroughly, use it when dry, and make the border firm as the work proceeds, planting the vines three-and-a-half feet apart for single rods. Black Hamburgh, Madresfield Court, Alicante and Muscat of Alexandra are all good growers, free in cropping and of good quality. Plant the Muscat at the warmer end of the house, or, better still, in a house by itself. If you wish to try other varieties, Appley Towers and Chasselas Napoleon might be added.

Communications Received.—J. O'B.—W. . J.—F. C. L.—H. M.—A. R.—V. G.—J. A. P.

MARKETS.

COVENT GARDEN, Tuesday, January 11*th*, 1927.

Plants in Pots, etc.: Average Wholesale Prices

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz.	10 0 12 0
—elegans	10 0 15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Cacti, per tray —12's, 15's	5 0—7 0
Cyclamens, 48's, per doz.	18 0-21 0
Chrysanthemums, in variety, 48's, per doz.	18 0-30 0
Crotons, doz.	30 0-45 0

	s. d. s. d.
Cyrtomium	10 0-25 0
Erica gracilis, 48's, per doz.	24 0-30 0
—60's, per doz.	9 0-12 0
—hyemalis, 48's per doz.	24 0-30 0
—60's, per doz.	12 0-15 0
—melanthrax, 48's, per doz.	24 0-30 0
—60's ,,	12 0-15 0
—72's ,,	8 0—9 0
Nephrolepsis in variety	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's	5 0—6 0
—small	4 0—5 0
—72's, per tray of 15's	2 6—3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	18 0-21 0
cuneatum, per doz. bun.	12 0-15 0
Asparagus plumosus per bun., long trails, 6's	2 6—3 6
med. sprays	1 6—2 6
short	0 9—1 3
—Sprengeri, bun. long sprays	2 0—2 6
med. ,,	1 6—2 0
short ,,	0 6—9 0
Bouvardia, white per doz. bun.	12 0-15 0
Camellias, 12's, 18's per box	3 0—3 6
Carnations per doz. blooms	3 0—5 0
Chrysanthemums, white, per doz.	5 0—8 0
—bronze ,,	8 0-10 0
—white, per doz. bun.	24 0-36 0
—bronze, per doz. bun.	24 0-36 0
—yellow, per doz. blooms	6 0—9 0
—yellow, per doz. bun.	30 0-36 0
—pink, per doz. blooms	6 0—9 0
—pink, per doz. bun.	36 0-42 0
—red, per doz. blooms	4 0—6 0
— red per doz. bun.	21 0-30 0
Croton leaves, per doz.	1 9—2 6
Daffodils, per doz. bun.	24 0-30 0
Fern, French, per doz. bun.	10 0-12 0
Freesia, white, per doz. bun.	3 0—3 6
French Flowers—	
—Acacia (Mimosa), per doz. bun.	15 0-16 0
—Ruscus, green, per pad	6 0—8 0
—Myrtle, green, per doz. bun.	1 6—2 0
—Narcissus, Paper White, per doz. bun.	5 0—6 0
—Violets, Parma, per bun.	8 0-10 0

	s. d. s. d.
Heather, white, per doz. bun.	6 0—9 0
—pink, per doz. bun.	6 0—8 0
Hyacinths, white, large, doz. bun., 3's	12 0-15 0
Lilac, white, per doz. stems	6 0—9 0
—mauve, per doz. sprays	8 0—9 0
Lilium longiflorum, long, per doz.	6 0—7 0
—speciosum rubrum, long, per doz. blooms	5 0—6 0
—short, doz. blooms	3 6—4 0
Lily-of-the-Valley, per doz. bun.	30 0-36 0
Narcissus Soliel d'Or, per doz. bun.	12 0-15 0
Orchids, per doz.	
—Cattleyas	24 0-36 0
—Cypripediums per doz. blooms	6 0—8 0
Prunus triloba, per doz. sprays	3 6—4 6
Ranunculus—	
—double scarlet	8 0—9 0
—yellow	18 0-24 0
Richardias (Arums), per doz. blooms	8 0-10 0
Roses, per doz. blooms—	
—Madame Abel Chatenay	6 0—7 0
—Richmond	12 0-15 0
—Madame Butterfly	15 0-18 0
—Safrano, 24's, per packet	4 6—5 0
Smilax, per doz. trails	5 0—6 0
Tulips, per doz.	3 0—4 0
—single white	18 0-24 0
— —yellow	30 0-36 0
— —scarlet	24 0-42 0
— —pink	36 0-48 0
—terra-cotta, per doz. bun.	24 0-36 0
—mauve, per doz. bun.	42 0-48 0
Violets	3 0—5 0

Remarks.—Supplies all round are on the increase, but prices are on the down grade. There has been a greater demand for the country trade during the past week. Supplies of Chrysanthemums are practically finished, especially of coloured varieties. Spray white and disbudded blooms are the most plentiful but their prices are firmer. The quantities of Daffodils and Tulips have increased daily, and prices have been greatly reduced; the Tulips include Wm. Copland, La Reine, Yellow Prince, Montresor, Salvator Rosa, Thos. Moore, Vermilion Brilliant, Couronne d'Or, Prince of Austria and Prosperity. All Liliums are cheaper owing to increased supplies. Larger quantities of flowers are being received from the Channel Islands; they consist of white and yellow Narcissi, Freesias, Violets, Anemones and Smilax. White and mauve Lilac is arriving from Holland in first-class condition; there is also a good supply of Tulips from Dutch growers, but they are not so fine as those from home-growers, although they arrive here in excellent condition. The consignments of flowers from the south of France are more plentiful again and much better in quality. Anemones and Acacia (Mimosa) are more reliable, also single Violets. Paper White Narcissus and Narcissus Soleil d'Or have sold freely the former owing to a shortage of other white blooms. Marigolds and scarlet and carmine Ranunculus are now much finer in quality, although the qualities are somewhat limited, but supplies should show a further increase during the next few days, with a further reduction in prices generally.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, American—	
—Albemarle	25 0-30 0
—Oregon Newtown	11 0-13 0
— — Winesap	9 6-10 0
—York Imperial	20 0-26 0
—Rome Beauty	9 0-10 6
—Nova Scotian—	
—Ribston Pippin, per barrel	20 0-21 0
—Russet	22 6-25 0
—Kings per barrel	20 0-25 0
—Stark, per barrel	17 0-20 0
—Others	18 0-20 0
British Columbian—	
—Jonathan	11 0-12 0
—Delicious	11 0-12 0
—Rome Beauty	11 0-12 9
—Newtown	11 0-13 0
Apples, English—	
—Lane's Prince Albert	8 0-12 0
—Bramley's Seedling	12 0-22 6
—Californian Newtowns	— 10 0
Bananas	17 0-25 0
Brazils, per cwt.	— 75 0
Cape Fruit—	
—Peaches	7 0-14 0
—Plums, Methley	— 5 0
— — Beauty	6 0—8 0
— — Santa Rosa	8 0-12 0
— Apricots	8 0-10 0

	s. d. s. d.
Chestnuts, Naples	— 30 0
Cobnuts, per lb	0 6—0 7
Grape Fruit—	
—Honduras	— 24 0
—Blue Goose	25 0-30 0
—Jamaica	— 24 0
Grapes, English—	
—Colmar	2 6—4 0
—Alicante	2 6—3 6
Grapes Belgian	1 6—2 0
Lemons, Messina, boxes	10 0-20 0
—cases	— 16 0
—Murcia	14 0-15 0
Oranges—	
—Denia	16 0-25 0
—Murcia	18 0-22 6
—Jamaica	15 0-21 0
—Jaffa	30 0-32 6
Pears, English	6 0-10 6
Pears—	
—Californian	
—Winter Nells, case	25 0-26 0
Pines, case	24 0-40 0
Walnuts, Grenoble, bag.	13 0-15 0
—Naples, kiln dried	80 0-85 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, Devon	5 0—8 0
— — Paris Green	7 0—8 0
Beans—	
—best	12 0-15 0
—ordinary	8 0-10 0
Beets, per cwt.	5 0—6 0
Belgian Chicory, per lb.	— 0 4
Cabbage, per doz.	2 0—2 6
Carrots, per ½-bag	4 0—5 0
Cauliflowers—	
—English, doz.	3 0—4 6
—St. Malo, crate	6 0—8 0
Celery, fan	1 6—3 0
Cucumbers, per doz.	24 0-42 0
French Batavian	3 0—4 0
—Endive, per doz.	3 0—4 0
Lettuce round,, per doz.	2 0—3 0
Mint. forced, per doz.	10 0-15 0

	s. d. s. d.
Mushrooms	
—cups	2 0—3 0
—Broilers	1 6—2 0
Onions—Valencia	10 0-11 6
Parsnips, per cwt.	4 6—5 6
Potatos—	
—King Edward ton	£9/10 £9/15
—others, ton	£5/10 £7/10
Radishes, per doz.	2 6—3 0
Rhubarb, forced, per doz.	1 9—2 3
Savoys, per doz.	1 9—2 3
Seakale, per punnet	2 6—3 0
Sprouts, Brussels per ½-bag	2 0—4 6
Tomatos—	
—Canary Island	16 0-25 0
Turnips, per cwt.	4 6—5 6

Business is quiet, but for the time of year, conditions seem brighter than usual. Peaches, Apricots and Plums from South Africa arrive in good condition and meet a steady demand. The Apple trade is slow, but some English Bramley's Seedling, which have been well stored, are selling extremely well. Hothouse Grapes are a poor market and prices are high for both English and Belgian sorts. Hothouse Beans are scarce and maintain an exclusive figure. Beans from Madeira are not plentiful but sell fairly well at firm prices. Mushrooms are in better supply, the open weather being favourable to production, and quotations are easier. New Potatos, mainly from Guernsey, are more plentiful and cheaper. Cucumbers maintain a high price level, arrivals being very scanty. Green vegetables are a very variable business, and, on the whole, not altogether satisfactory to producers. Salads, principally from France, are increasing in quantity, but are in active demand and selling well. Potato trade conditions are steady at recent improved figures.

GLASGOW.

All the departments of the market were quiet during the first week of the year. In the cut flower section the daily supplies were on a much smaller scale and price movements were all in a downward direction. Roses, for instance, were only worth half their previous value at 6/- to 8/- per dozen for pink; 4/- to 6/- for red; and 3/- to 5/- for white varieties. Carnations at 4/- to 6/- did not suffer to the same extent, while Lilac at 1/6 to 2/- ber bunch and Narcissi at 4/- to 5/- per dozen bunches kept steady. Tulips offered a better solution, but values were not so good as they were in the previous week. W. Copland only made from 1/- to 1/6 for 6's; Thomas Moore, Montressor and Le Matelas, 1/- to 1/3; Couronne d'Or and Vermilion Brilliant, 1/3 to 1/6; and white varieties, 1/- to 1/2. The few Chrysanthemums that are still coming into the market from one of the local growers were disposed of at the following prices: Favourite, 10d. to 1/2; Winter Cheer, 10d. to 1/-; Heston White, 8d. to 1/-; and Wilcox, 8d. to 10d. Tulips in pans were not in less demand at 1/- to 2/- each.

Valencia Oranges dominated the fruit market and in consequence of the scarcity caused by the prevalence of frost and snow in districts where such weather conditions have not been experienced for many years, prices advanced from 4/- to 5/- per case. At the auction sales 300's brought from 21/- to 24/-; 360's, 17/- to 20/-; 504's, 16/- to 17/-; 420's, 26/- to 28/-; and extra large fruit, 40/-; 714's, 28/- to 30/-. Exceptionally fine Jaffas were moderately priced at 15/6 to 15/-, while Mandarins sold at 1/2 to 1/9 per tray, and half-cases of 55's, 10/6 to 12/-; 60's, 15/-, and 65's. 18/6. Prices of Grape Fruits ranged from 22/- to 24/-, and Palermo Lemons from 16/- to 17/- per case. American Apples are a quietly steady trade; Western States Greening were worth 25/- to 26/- per barrel; Canadian Baldwin, No. 1, 24/-, No. 2, 20/-; Nova Scotia Stark, No. 1, 20/-, No. 2, 17/-; Delicious and Newtownards, 12/- to 14/- per case; Winesap, ex. fancy, 13/6 to 14/6. The prices of Seville bitter Oranges averaged 18/6 per case, and those of Teneriffe Tomatos varied from 18/- to 28/- per bundle. First consignments of South African fruits were in good condition and Peaches made 10/- to 12/- per box, Plums, 7/- to 10/- and Apricots, 5/- to 8/-. French Lettuces were sold for 4/9 per dozen.

TRADE NOTE.

Messrs. G. Monro, Ltd., whose various establishments are amongst the most important in Covent Garden market, have acquired the premises recently occupied by the Ministry of Labour in Tavistock Street, for their Country Order Department connected with their flower and plant business. The old premises of the Floral Postal Order Department at 5, Tavistock Street, will, we understand, be utilised for their extensive business in foliage which the firm has developed extensively in the past year or two; during Christmas week it was utilised for the Christmas tree section of the business. The variety of "foliage" subjects handled by the firm is very extensive and includes many kinds of Cupressus and other Conifers, Box, Ivy, Laurel, Bay, Myrtle, Pittosporum, Galax leaves, Holly, Berberis, Ruscus, Grieslinia, Rosemary, Rhododendron, Camellia, Fern and Asparagus in variety, Smilax, Lichen, Moss, and, in their season, such deciduous trees as Beech, Sweet Chestnut and Oak.

CATALOGUES RECEIVED.

Seeds.

W. Fell and Co. (Hexham), Ltd., Hexham.
Brown and Wilson, 10, Market Place, Manchester.
Sale and Son (Wokingham), Ltd., Wokingham, Berks.
McHattie and Co., Chester.
W. Smith and Son, Ltd., 18, Market Street, Aberdeen.
Upstones, 35, Church Street, Rotherham.
Fisher, Son and Sibray, Ltd., Handsworth, Sheffield.
Daniels Bros., Ltd., Norwich.
W. Drummond and Sons, Ltd., 57, Dawson Street, Dublin.
Cooper, Taber and Co., Ltd., 90, Southwark Street, S.E.1. (Wholesale.)
John Waterer, Sons and Crisp, Ltd., Twyford, Berks.
J. R. Pearson and Sons, Ltd., The Nurseries, Lowdham, Notts.
Hurst and Son, 152, Houndsditch, E.1. (Wholesale).
S. Finney and Co., Ltd., 18, Grainger Street, Newcastle-on-Tyne.
Samsons, Ltd., 8, Portland Street, Kilmarnock.
Harrison and Sons, Leicester (Wholesale).
R. Veitch and Son, 54, High Street, Exeter.
Chas. Sharpe and Co., Ltd., Sleaford. (Wholesale).
Barr ahd Sons, 11, King Street, Covent Garden, W.C.2.
G. H. Plant and Co., The Eastgate, Chester.
E. P. Dixon and Sons, Ltd., Hull.
Fidler and Sons, Reading.

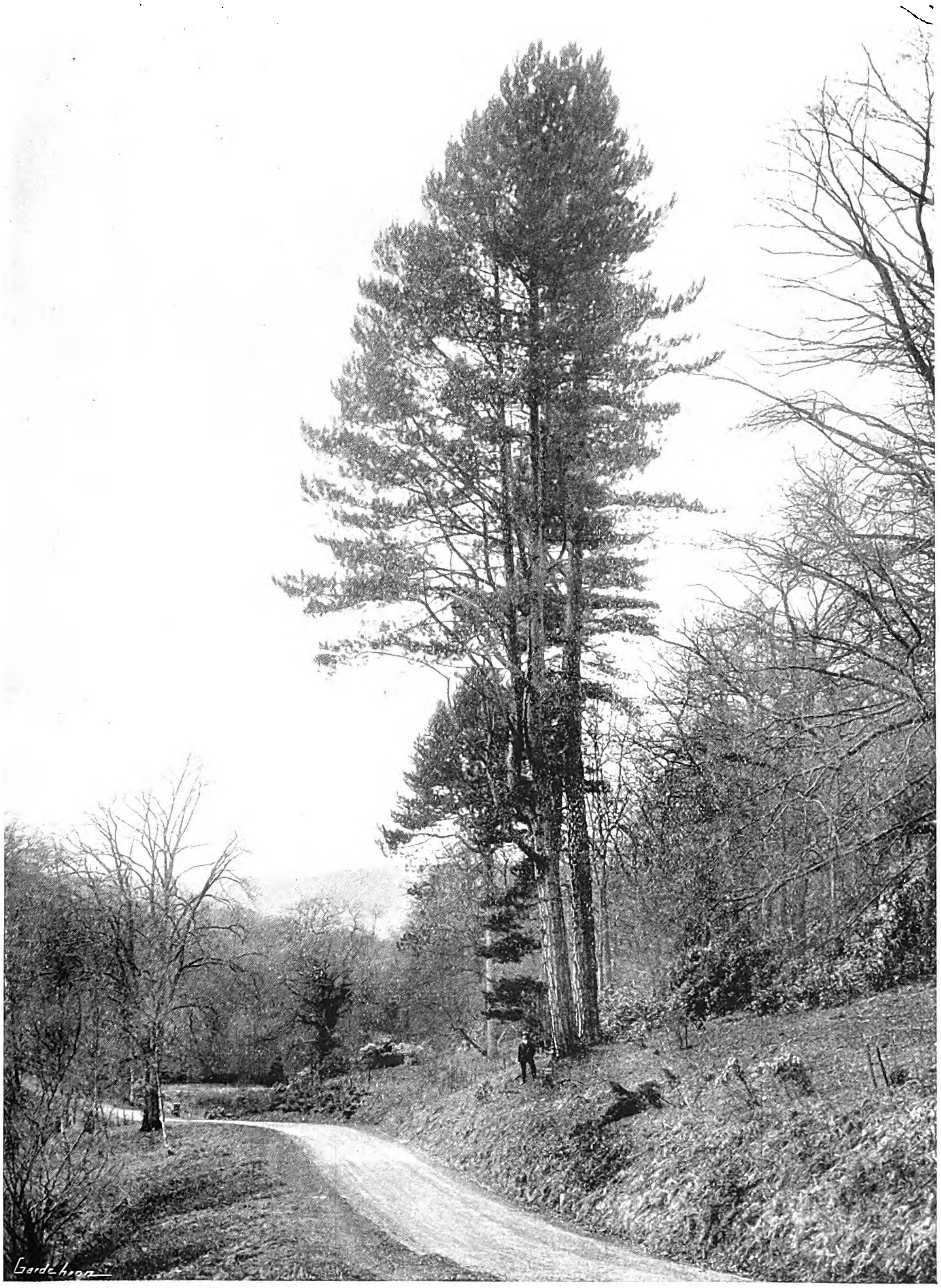
Miscellaneous.

Bugge's Insecticides, Ltd., Westcombe Hill, S.E.3. Plant Hygiene.
H. Scott and Sons, Woodside, S. Norwood, S.E.—Horticultural Sundries.
C. Engelmann, Ltd., Saffron Walden.—Carnations.
Joseph Fison and Co., Ltd., Ipswich.—Fertilisers.
Blackmore and Langdon, Bath.—Begonias, Delphiniums, etc.
C. S. Daniels and Sons, Ltd., Wymondham, Norfolk.—Plants.
J. Barbour and Sons, Ltd., South Shields.—Weather comforts.

Foreign.

H. Correvon, Floraire, Chene-Bourg, nr. Geneva.—Seeds
Richard Meisert, Könnern a. d. Saale, Province Sachsen—Seeds.
W. Atlee Burpee Co., Philadelphia, Pennsylvania.
Carl Beck and Co., Quedlinburg a. Harz, Germany

Supplement to the GARDENERS' CHRONICLE.



CORSICAN PINES (PINUS LARICIO VAR. PALLASIANA).

THE
Gardeners' Chronicle

No. 2091.—*SATURDAY, JANUARY 22, 1927.*

CONTENTS.

Alpine garden—
  Herpolirion Novae-Zelandiae ... 65
Apple Joy Bells ... 73
Apples, biennial cropping of 73
Autumn tints... ... 73
Bog garden—
  Useful plants for moist places ... 65
British Mycological Society's London meeting 60
Cabbage butterflies ... 73
Cherry fly in France, the 60
Cultural memoranda—
  Deep trenching ... 73
Economic plants of the Bay Islands ... 69
Edinburgh, notes from 64
Emulsified oils for the destruction of insect eggs 72
Fertility of the garden, the 59
Flowers by air, transport of 61
Fruit garden, the market 71
Fruit register—
  Apple Rev. W. Wilks 71
  Apple Rival ... 71
  Plum Diamond ... 71
"Gardeners' Chronicle" seventy - five years ago 61
International Rose Conference, July, 1928 60
Lathyrus tuberosus ... 73
Lilies in 1926 66
Mesembryanthemum . 70
New Zealand, the flora of 61
Nursery trade in Berlin, the 60
Obituary—
  Abbiss, Arthur ... 74
  Hert, Georges ... 74
  Page-Roberts, Rev. F. 74
Orchids, new hybrids 64
Pineapples, Chinese ... 60
Pinus Laricio... ... 68
Plants in flower at La Mortola on January 1, 1927 65
Potato diseases, the problem of 60
Promise and performance 69
Societies—
  Cardiff and District Gardeners' ... 74
  Orchid Club ... 74
  Reading and District Gardeners' ... 74
  United Horticultural Benefit and Provident 74
Stellenbosch Botanic Gardens 61
Vegetable garden—
  Horseradish ... 73
  Lettuce 72
  Sweet Corn... ... 72
Watt, Sir James ... 60
Week's work, the ... 62
Wisley, notes from ... 64

ILLUSTRATIONS.

Conophytum praeparvum 70
Cup presented by Mr. G. Loder to New Zealand ... 63
Cypripedium Chardwar var. Perfection... 61
Herpolirion Novae-Zelandiae 65
Lilium longiflorum eximium as a field crop in Bermuda, 67; L. ochraceum, 66; L. tenuifolium 68
Plum Diamond 71
Watt, Sir James, portrait of 60

SUPPLEMENT PLATE.

Pinus Laricio growing at Stanage Park.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39·4°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 19, 10 a.m. Bar. 30·1. Temp. 36°. Weather, Fine.

The Fertility of the Garden.
I.

SOILS, like facts, are stubborn things; yet, fortunately for the gardener, they are not quite so stubborn, for if coaxed and bullied sufficiently they may be so altered that their fertility is increased greatly. Both coaxing and bullying are necessary instruments for the training of the soil in the way it should go; though it must be confessed that of the two the latter is the more potent, as it used to be in the education of those of us who are now elderly. Once the fertility of a garden soil has been achieved it is not difficult to maintain it; but in these days it is far less easy, in spite of the great growth of knowledge of the science of the soil, to bring unkindly ground into a highly fertile state. Moreover, there are some soils which when brought under garden cultivation give for a year or two prodigious crops and then, as though growing tired of well-doing, regress to parsimonious yielding. Wherever this occurs the gardener may be sure that the falling away from grace is due to some defect in the essential conditions upon which a good soil depends, and generally it will be found that the defaulting condition is insufficient drainage. A wettish year, or ditches left uncleaned, may result in the winter water-logging of a soil which had previously seemed well on the way to fertility. It is for this reason that every good gardener gives first attention to drainage in laying out his garden; for he knows that what is easy to do *ab initio* is troublesome and difficult to accomplish once the garden has been laid out. He is wise also in this, that he makes and preserves a plan of the drainage system, for he knows that within a few years the best of memories will grow dim, and long before the garden is fully established, it will assuredly happen with respect to the lie of the drainage tiles, that all the rest for which he toiled will be forgotten. In the old days it was possible, when plenty of labour was available, to ensure soil fertility by deep digging. The ground destined to become a garden was trenched three feet deep and all manner of material, which in its decay makes for soil fertility, was incorporated with the soil, so that even the unkindly turned up sub-soil was constrained to become kindly to the growth of plants. It is in some ways unfortunate that in our climate less drastically sound methods often lead to a measure of success; for it tempts those who are in a hurry to forego the toil on which alone soil fertility securely rests. There are, however, countries where, unless the soil be stirred to at least a yard in depth, nothing will grow. On the Riviera, for example, anyone who would make a garden must, unless he would ensure failure, delve with mattock and shovel a full yard deep, for there, unless this be done, summer drought extinguishes anything recently planted, and the garden returns to natural scrub. In any case, if Pope, who was a gardener, had been thinking of soils instead of knowledge, he might have revised his famous lines and written "a little digging is a dangerous thing—dig deep or dig not . . . . ." Next, perhaps, in importance to drainage in the making of soil fertility is liming—liming on heavy, chalking for light soils—for, as everyone knows, soils have what is called a lime requirement which ranges from nil on chalky soils to a very high figure on the distinctly acid soils. This requirement is easy of ascertainment and must be satisfied if soil is to become fertile. For it is a fact that most of the plants grown in gardens—save, of course, the lime-shy contingents—thrive best when the soil borders on neutrality. It is certain that, speaking generally, the kitchen gardens of this country would be rendered more apt to become fertile if they were to receive, say, triennially, a dressing of lime in quantities in accordance with their several lime requirements. They would become kindlier, the stiff ones easier to work, the light ones less skimpy as a result of the treatment and, moreover, they would all respond better to manurial treatment. With drainage satisfactory, ground dug deeply, and the lime requirement of the soil satisfied, the gardener has in his soil a well-equipped plant-factory which, if supplied with a sufficiency of the right kinds of raw material, will yield a large output in the form of heavy crops. But to secure this end and to maintain production it must be remembered that large crops make large demands on the soil. And not only that, but also that the demands are of more than one kind. Although it must never remain wet, the ground is obliged, if it is to produce a heavy crop, to yield to the growing plant vast quantities of water. Moreover soil fertility consists in no small measure in balancing as it were, the water supply and air supply, which all plants must have. If too wet, the roots of the plants growing in the soil are asphyxiated; if too dry, they dry out. Hence the importance of depth of soil and efficient drainage. The one condition ensures a large reservoir, the other the removal of surplus water. When all these conditions have been established, the gardener can turn his attention to the problem of manuring, and this subject, as he well knows, has a dual aspect.

Immune and Non-Immune Potato Crops Inspected in Scotland in 1926.—The Board of Agriculture for Scotland has issued interesting summaries on acreages of crops of immune and non-immune varieties of Potatos inspected for purity in Scotland during 1926. In the following lists the varietal name is given first, then the acreage showing 99·5% of purity or over, next the acreage showing below 99·5% to 97% purity; then the acreage showing below 97% of purity and, finally, the total acreage inspected of the given variety.—Immune varieties: Kerr's Pink, 7,090¼, 1,268¼, 370½, 8,729; Great Scot, 5,423, 977¾, 693½, 7,094¼; Majestic, 4,187, 506¼, 271¾, 4,965; Golden Wonder, 1,829¾, 187¼, 31½, 2,048½; Ally, 657¾, 53½, 14¾, 726; King George, 384, 11½, 10, 405½; Arran Comrade, 198¾, 29¾, 35½, 264; Tinwald Perfection, 233½, 26½, 2½, 262½; Rhoderick Dhu, 208½, 41¼, 5½, 255¼; Crusader, 112¼, 11, 11, 134¼; Abundance, 89½, 20¾, 15¼, 125½; Witchhill, 80, 4¼, 12, 96¼; Arran Consul, 81, 2½, 6½, 90; Immune Ashleaf, 77½, 0, 1½, 79; Arran Victory, 62, ½, 1, 63½; Dargill Early, 51¼, 9¾, ¾, 61¾; and others, 332, 49¼, 18¾, 399; totals, 21,098, 3,199, 1,502¼, 25, 799¼. Non-immune varieties: King Edward, 11,856, 2,167½, 750, 14,773½; Arran Chief, 1.921, 579½, 576¼, 3,076½; Epicure, 1,048¾, 441½, 256¼; 1,746½; Eclipse, 1,453, 130, 77, 1,660; British Queen, 1,038½, 249, 129¼, 1,416¾; Field-Marshal, 1,175, 57¼, 78½, 1,310¾; Sharpe's Express, 780½, 145, 87½, 1,013; Duke of York, 568, 70½, 60½, 699; Up-to-Date, 537½, 19½, 28½, 585½; Royal Kidney, 201¾, 13, 6, 220¾; May Queen, 130, 3¾, 3½, 137¼; Ninetyfold, 127¾, 1, 3¼, 132; Evergood, 78, 7½, 0, 85½; President, 42½, 12½, 8, 63; and others, 99, 21½, 18½, 139; totals, 21,057¼, 3,919, 2,083, 27,059¼.

Rhododendron Society's Schedule.—In the schedule of prizes offered by the Rhododendron Society on the occasion of its second show to be held in the Royal Horticultural Hall on Tuesday and Wednesday, May 3 and 4, no fewer than sixty-two classes are provided, and although the cash awards are not large in any instance, special prizes are offered and silver-gilt, silver and bronze medals will be awarded. The first half-dozen classes are for groups of Rhododendrons. The largest trade exhibits are limited to 250 square feet, while the smallest amateur group must not exceed thirty square feet in extent. In regard to these classes, Azaleas are reckoned synonymous with Rhododendrons, and no foliage other than Rhododendron foliage will be admitted as decoration. Further, in these six classes the Rhododendrons exhibited may be grown in the open or under glass, and unless particularly specified, the flowers may be shown either cut or growing on the plants. Then follow classes for twelve trusses of distinct species, twelve hybrids, six species, and six hybrids. All except three of the remaining classes are for single trusses of Rhododendrons, and these are so arranged that the principal series of groups of Rhododendrons may be represented. There is also a class for three alpine Rhododendrons lifted from the ground or grown in pots, one for six distinct trusses of hardy hybrids raised by nurserymen and capable of being grown and flowered in the open at Kew, and one for a group of alpine Rhododendrons in pots or lifted from the ground, arranged on a space not to exceed four feet by six feet. The schedule defines that for the purpose of this last group an alpine Rhododendron shall be any of the Cephalanthum, Lapponicum, Lepidotum or Saluenense series or the Campylogynum sub-series of the Campylogynum series. For educational purposes the members of the Rhododendron Society will, on this occasion, arrange an exhibit of plants of the Lapponicum series. Mr. J. B. Stevenson, Tower Court, Ascot, has kindly agreed to take charge of this arrangement, and anyone who is willing to lend plants of this series for this display is asked to communicate with him, but while every effort will be made to return the plants in good condition, no guarantee can be given. All entries for the Rhododendron Show must reach the Secretary of the Royal Horticultural Society by 10 a.m. on Wednesday, April 27. The members of the Show Committee are Mr. Lionel N. de Rothschild (Chairman), the Hon. H. D. McLaren, Mr. J. B. Stevenson, Mr. E. H. Wilding, and Mr. P. D. Williams.

The Problem of Potato Diseases.—Speaking at a meeting of the Glasgow and West of Scotland Agricultural Discussion Society on the 12th inst., Mr. D. G. O'Brien, of the West of Scotland Agricultural College, said the estimated actual loss in Great Britain due to Potato Blight was about twenty per cent. of the crop, or about five million pounds sterling per annum. With control of disease the yield of Potatos could be increased without difficulty. As to Wart Disease, this was, unfortunately, the only known disease where permanent immunity existed in certain varieties. Our knowledge of virus diseases in Potatos was still unsatisfactory, and until the casual agents of virus and leaf-roll had been isolated and identified, there was little hope of progress. These diseases were much more prevalent in England than they were in Scotland. Mr. John Gibb, Bishopton, said that he had sprayed his Potato crops ever since he started farming and he found that to be effective the spraying should be done preferably before the flowers came out, or in the case of a non-flowering variety, when the flower buds appeared. In 1920 he lost time by trying to repair a sprayer, and this cost him £1,000 in lighter crops and lower returns. In most districts of Ireland, and in Lincolnshire and Cambridgeshire, Potatos could not be grown profitably unless they were sprayed, and he felt that his farm was in the same position. The "wilding" habit of some Potato plants was a subject that required investigation.

Chinese Pineapples.—Messages from Singapore state that the decision of the recently formed combine of all local Chinese Pineapple factories to reduce production by thirty or forty per cent. is unpopular in mercantile circles there. Already the industry has suffered considerably on account of the combine's prices being higher than the London trade will pay. Of the million or so cases annually exported from Singapore, eighty per cent. has hitherto been taken by Great Britain.

The Cherry Fly in France.—French Cherry growers are keenly concerned about the edict published by the Ministry of Agriculture in London last year, prohibiting the export to this country of Cherries from France, unless accompanied by a certificate to the effect that they come from a part of the country in which the Cherry Fly (Rhagoletis cerasi) is known not to be present. The growers are inclined to discount the danger to English orchards, as they claim that, whereas only about 600 tons of English Cherries are grown each year, the importations from France amount to between 60,000 and 80,000 tons. However this may be, the danger is none the less, and unless the pest can be eradicated, the consumption of Cherries of all kinds, whether native or imported, is likely to decline.

British Mycological Society—London Meeting.—At a Meeting of this Society to be held in the Botanical Department, University College, Gower Street, London, on Saturday, January 22, at 11.0 a.m., the following subjects will be discussed: "Studies on Rhizoctonia Crocorum and Helicobasidium purpureum," by Mr. W. Buddin and Miss E. M. Wakefield "On the naming of a dark-spored Hyphomycete," by Mr. E. W. Mason; *Fragmenta Mycologica, V*," by Mr. J. Ramsbottom; "Anthracnose diseases of Red Clover," by Miss K. Sampson; "Studies of Apple Mildew." by Mr. R. C. Woodward. Luncheon will be arranged in The College Refectory.

Sir James Watt.—The list of New Year honours included a very old friend of *The Gardeners' Chronicle*, Mr. James Watt, who acquired the business of Messrs. Little and Ballantyne, nurserymen and seedsmen, of Carlisle, so far back as 1870, and conducted it as the sole partner until quite recently, when he took his two sons into partnership. The knighthood conferred upon Mr. James Watt was in recognition of the many public services he has rendered; horticulturists generally will have learned with great pleasure that a member of their own profession and industry has been thus signally honoured. Sir James was born in East Lothian, in 1842, where his forbears were extensive farmers. He served his apprenticeship as a seedsman in Edinburgh, but his life work has been carried out with the firm of Little and Ballantyne. He is one of the oldest members of the Royal Agricultural Society, and was at one time a successful breeder of Leicestershire sheep and pedigree shorthorns. In 1900, he served on the Board of Agriculture's Departmental Committee on Seeds; was Chairman of the English Forestry Committee in 1921; President of the Scottish Nursery and Seed Trades' Association in 1891, and he is one of the founders of the English Arboricultural Society. Sir James has always taken a great interest in local affairs, and is an Alderman of the Cumberland County Council, and hon. treasurer for the Conservative Organisation of that county. Fortunately, Sir James enjoys good health, and his many friends trust he will long be spared to continue to control the fortunes of the large nursery business he has done so much to place in the forefront of horticultural enterprises.

SIR JAMES WATT.

Sugar Resources of the British Empire.—On Tuesday, January 25, Mr. Ben. H. Morgan, Chairman of the British Empire Producers' Organisation, will lecture before the Royal Society of Arts on "The Sugar Resources of the British Empire." The lecture will commence at 4.30 p.m., and the Rt. Hon. L. C. M. S. Amery, M.P., Secretary of State for Dominion Affairs, will preside.

The Nursery Trade in Berlin.—The municipal authorities in Berlin have decided to grant short-term loans to nurserymen wishing to extend their businesses, on condition that production is definitely increased as a consequence. A credit of a quarter-of-a-million gold marks is being established for the purpose of the loans, which will carry the moderate interest of six per cent. It is hoped by this means to assist German nurserymen to compete successfully with foreign growers, especially in the cultivation of Roses and Carnations; if it is found to have this effect, doubtless other large German towns will follow the example of the capital.

Lecture on Marketing Fruit.—At a meeting of the Farmers' Club, to be held at the Surveyors' Institution, 12, Great George Street, Westminster, on the 31st inst., Mr. H. V. Taylor, of the Ministry of Agriculture, will deliver an address on "Modern Methods of Marketing Fruit."

Buddleia Forrestii and B. Fallowiana.—Regarding the confusion between Buddleia Forrestii and B. Fallowiana, our correspondent, *A. G. F.*, writes: "I have come to the conclusion that the plant which I described (see *Gard. Chron.*, Dec. 18., vol. LXXX, p. 489, Fig. 214) is B. Fallowiana, as Mr. Marquand suggests, though how the apparently widespread confusion has arisen, I cannot state for certain. I can only suggest that it originated with the collected seed, as plants raised from the several consignments of seed sent by Mr. G. Forrest are all apparently B. Fallowiana, *i.e.*, the plant described erroneously by myself under the name of B. Forrestii. Mr. R. L. Harrow, of Edinburgh, has kindly furnished me with details of the distinguishing characters of the two species, while he also suggests that the figure in the *R.H.S. Journal* is also B. Fallowiana and not B. Forrestii. It seems to be my plant which Mr. Notcutt refers to as the B. Forrestii of commerce, probably all of which are of similar origin, therefore there must be a very considerable number of plants thus wrongly named throughout the country. According to Mr. Harrow, whose statement endorses that of Mr. Marquand, the plants are best distinguished when in bloom by the width of the corolla tube—B. Forrestii has a very wide tube compared with the length of the corolla, while B. Fallowiana has a very narrow tube. B. Forrestii is also apparently not of such erect habit as B. Fallowiana, while its foliage is considerably broader and has far less, in fact, very little, silvery down. From this information, I think there is little doubt as to the identity of the plant. I greatly regret having made an error as to the name, but trust that what must be a fairly widespread mistake, will now be rectified."

International Rose Conference, July, 1928.—An International Rose Conference will be held in London in the beginning of July, 1928. On the first day a Rose show will be held to give raisers of all countries the opportunity to exhibit their best productions and, if possible, demonstrate the steps which have led up to them. Awards of cups, medals and certificates will be made. The second and third days will be devoted to the Conference proper, and distinguished raisers and growers will be invited to submit papers on "The Genetics of the Rose," "Fungus and other Pests," "The Future of the Rose as a Decorative Flower," "The Future of the Rose as a Market Flower," "Roses under Glass," and "Rose Species." British (including Australian, New Zealand and Canadian), Continental and American experts will be invited to contribute to this programme. A dinner will be given on the first night and a conversazione on the second, while visits will be planned to Kew Gardens and also to several of the leading nurseries. A Reception Committee will be formed to assist visitors to secure hotel accommodation, etc. The time table proposed is as follows:—June 29 and 30: National Rose Society's Summer show; July 2: Visit to Kew; July 3: Visit to Colchester Nurseries; July 4: Conference, Rose Show and Dinner; July 5 and 6: Conference; July 6: Evening Soirée; July 7: Visit to Lea Valley Nurseries. Raisers in Australia, New Zealand, Canada or the United States desiring to have plants of special varieties grown in Britain to enable them to exhibit blooms of their novelties at the Conference, are requested to get into touch with nurserymen whom they may know, asking them to cultivate the plants. A number of British growers have already promised to do so, and to treat the plants as if they were absolutely the property of the senders. Raisers who may not know nurserymen personally in this country are invited to write to Mr. Courtney Page, 28, Victoria Street, Westminster, London, the Secretary of the National Rose Society, who will make arrangements to have the varieties grown. Plants sent under this scheme would be taken every care of, and precautionary measures as far as possible assured.

Transport of Flowers by Air.—Some interesting facts on the development of air transport for flowers are given in our contemporary, *La Revue Horticole*, January 16. For several years past, fresh flowers have been carried regularly by aeroplane between Holland, Germany and Scandinavia; and in 1922 the Netherlands Dahlia Society sent to Paris by air a splendid collection of new varieties which were entered for the special competition organised by the French National Horticultural Society, and were afterwards distributed to the hospitals. The idea is being seriously considered of making use of air transport for the immense trade in fresh flowers which is done in the south of France and on the Italian Riviera. The utilisation of the air-line which has plied regularly since the summer of 1926 between Marseilles and Paris, forming a link with the air-lines from Paris to the towns of Northern Europe, would mean an appreciable saving of time without a great increase in cost, especially as the flowers would arrive fresher at their destination and there would therefore be less loss in transit than at present.

Exchange Stabilisation in Hungary.—Following the example of Germany and Austria, Hungary has altered the title of the coinage used, and the standard coin used is now known as the "Pengö," equal to one hundred Heller or Filler. The "Pengö" is worth about 9d. in English money.

The Flora of New Zealand.—Mr. Gerald Loder, President of the Royal English Arboricultural Society, and a member of the Council of the Royal Horticultural Society, has presented a Silver Challenge Cup (Fig. 33) to New Zealand with the object of encouraging the preservation and cultivation of the native flora of New Zealand. The Prime Minister of New Zealand, who recently left for the Dominion, is taking the cup with him. It is to be competed for at the principal shows, both in the North and South Islands, under conditions to be drawn up by competent authorities on the spot. The Government of New Zealand has from time to time set apart certain reserves, one aim of which is to preserve native trees and shrubs and flowers from extinction, the danger of which is increasing partly owing to clearances and partly owing to the rapid acclimatisation of alien introductions. In the public gardens, too, increasing efforts are being made in the same direction, and it is hoped, by the institution of some form of competition at public shows, to stimulate the cultivation of native plants in private gardens. The flora of New Zealand is not only of extreme interest to botanists on account of its long isolation and consequent distinctiveness, but, owing to similarity of climate, especially of the Southern Island with the Western and Southern parts of the British Isles, it is capable of furnishing British gardens with many more shrubs and flowers than is generally supposed. Something like one hundred species of Veronicas are to be found in New Zealand, nearly half of which are hardy enough to be grown in the open at Kew. Those who have been privileged to see Major Dorrien Smith's fine collection of New Zealand plants at Tresco, in the Scilly Isles, formed partly by his predecessors, but largely by himself, will recognise how valuable many plants of the New Zealand flora are in gardens.

Stellenbosch Botanic Gardens.—The improvements in the botanic gardens at Stellenbosch, South Africa, which have been effected by the Curator, Mr. Herre, are proceeding apace. The biological section is especially admired by English and Dutch visitors alike; it is the first establishment of the kind in South Africa, with its new porcelain name plates giving all necessary particulars of the specimens. Public interest has been considerably aroused by the developments which have taken place, and the authorities are now in a position to carry out a plan which they have long contemplated, that is, to move the nursery to a more favourable spot. Next year, under the direction of Mr. Herre, a modern greenhouse will be erected, and will be followed by other houses, including one specially adapted for tropical plants.

Appointments for the Ensuing Week.—Monday, January 24: National Chrysanthemum Society's Executive Committee meets. Tuesday, January 25: Royal Horticultural Society's Committees meet; British Carnation Society's annual meeting; Gardeners' Royal Benevolent Institution annual meeting and election at Simpson's Restaurant, Strand; Wimbledon Gardeners' Mutual Improvement Society's meeting. Thursday, January 27: Paisley Florists' Society's meeting. Friday, January 28: Association of Economic Biologists meeting. Saturday, January 29: Lancaster and District Horticultural Society's lecture.

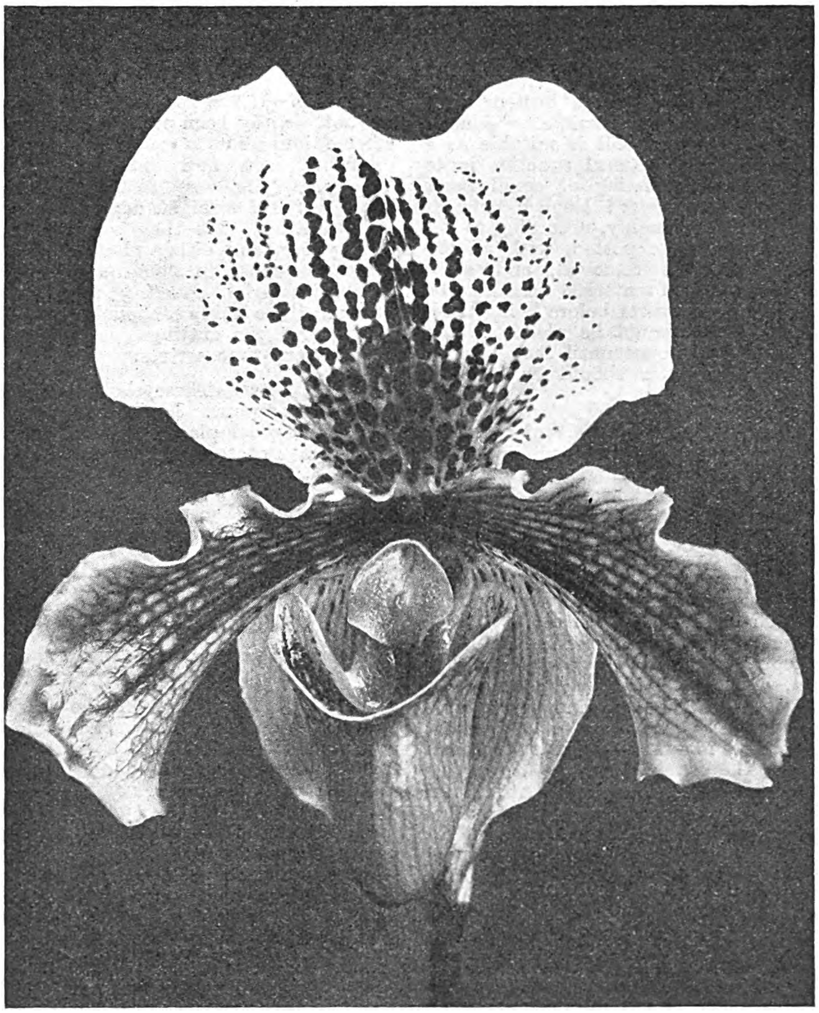


FIG. 32.—CYPRIPEDIUM CHARDWAR VAR. PERFECTION.

R.H.S. First-Class Certificate, January 11. Dorsal sepal white with spots in the central area; petals light greenish-yellow with brownish reticulation. Shown by G. F. Moore, Esq. (see p. 56.)

"Gardeners' Chronicle" Seventy-five Years' Ago.—*Peppermint.*—Peppermint is very largely grown round Mitcham; not less than three hundred acres are occupied with it for distillation, Peppermint water being much used in medicine. For new plantations the ground is dunged and ploughed by April, and as soon as the shoots grow four inches in length, they are pulled up, with roots attached, and planted in rows one foot apart and six inches distant in the row. If the head is cut off in planting, the lower eyes all grow and make a good crop the first year. Peppermint, like Couch-grass, sends up shoots at every joint, and after a couple of seasons or so the shoots get so crowded that they become weak, the leaves small and hard, the blossom poor. In this state it is not half so good for distillation. About Mitcham, however, much attention is paid to its after cultivation. They manure the ground the second year, and dig out furrows half a rod apart, throwing the mould over the beds. If new crops are wanted from these beds, plants are selected for the purpose, as described above. The third year the Mint is all ploughed down in November, a judicious practice, when we consider the sort of plant we have to deal with. In this way the destruction of all weeds and seed weeds is effected, as well as the manuring of the land, if required. In spring the Mint comes up thick, strong and healthy, producing an enormous herbage and amount of flower. It is cut down when just going out of bloom, and carried to the drying houses; for the more its watery juices are evaporated the finer the extract is. It is not only extensively grown at Mitcham, but I am informed that in the adjoining parishes there are at least three hundred acres of Peppermint cultivated every year. Spearmint is not grown, as it does not yield much juice. *James Cuthill, Camberwell. Gard. Chron., January 24, 1852.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Orchid Grower to LADY LEON, Bletchley, Park, Bletchley, Bucks.

Cypripediums.—The great demand for flowers of these easily-grown Orchids for all kinds of decorative work has caused them to be one of the principal features of present-day collections. Many of the cool-growing Cypripediums which have passed out of flower may be repotted so soon as possible whenever new roots are observed to be developing. Pot-bound specimens should be shifted into larger receptacles, which should be thoroughly well-drained. Cypripediums require a fair amount of pot room, and as the best flowers are obtained from good, strong plants it is desirable to hasten their development as fast as possible. Almost any kind of rich, porous soil is suitable as a rooting medium. The general practice is to prepare a mixture consisting of equal parts of good, fibrous loam, good English peat or A.1. fibre, broken up roughly, according to the size of the plants to be potted, with all the small earthy particles removed, and some Sphagnum-moss. The materials should be well mixed and made warm before being used. Newly-potted plants should be placed in the warmest part of the house until they become re-established, and water should be afforded them with great care.

Dendrobiums.—The flower buds of many of the deciduous and semi-deciduous varieties of Dendrobium are developing, and the roots may receive slightly more water, but the plants should be allowed to become dry before watering them again. Any check given to these plants during the development of their flowers, either from an excess or deficiency of water, or from too low, or too high, a temperature will show itself in the inferior size and quality of the flowers. It is not advisable to hasten their development unduly, as growth made in these short, dull days is always more or less of a weak nature. The flowering period may be prolonged by placing some of the more forward specimens in a more humid and warmer position, but this should not be attempted with choice and scarce varieties. At a later date, when the days are longer and the weather conditions more conducive to the plant's welfare they will make satisfactory growth and produce fine flowers. Plants which were slightly forced in previous years will respond readily to this treatment year after year without any harm accruing, hence the advisability of keeping the same plants for this particular purpose.

THE KITCHEN GARDEN.

By R. H. CROCKFORD, Gardener to THE RT. HON. LORD WAVERTREE, Horsley Hall, Gresford, N. Wales.

Seakale, Chicory and Rhubarb.—Adequate supplies of these vegetables should be brought into the forcing house at frequent intervals to maintain a succession. Do not use an excessive amount of fire-heat or the growth will become drawn and stringy; a temperature of 55° is suitable. Chicory should be grown at the cooler end of the house. Promote a moist atmosphere by damping the floors on frequent occasions.

Early Peas.—If seeds be sown now in pots or boxes, the latter for preference, and germinated in a temperature of about 45°, the young plants will be ready for planting out-of-doors towards the end of March. The most convenient-sized box for this purpose is one thirty inches long, five inches deep and five inches wide. The bottom of the box should not be nailed in, but fixed securely by strong string, so as to be detached easily at planting-out time. The soil for sowing the seeds should consist of three parts loam, and one part each of leaf-mould and burnt earth. Sow the seeds about one-and-a-half inch apart, and cover them with about one inch of soil. So soon as the seedlings commence to grow, ventilate them freely to ensure sturdy and well-hardened plants that will not receive a check when planted outside. A few good varieties for this purpose are Harbinger, Eight Weeks, Little Marvel, Chelsea Gem and English Wonder. Mice are often very troublesome in eating the seeds, but not if the latter are coated with red lead before they are sown.

Broad Beans.—To ensure early pods the seeds should be sown now in four-and-a-half inch pots which will accommodate two plants that may easily be separated without giving them an undue check at planting-out time. The pots should be filled with soil of a loamy nature mixed with leaf-mould or manure from a very old hot-bed and a small quantity of burnt earth to render the soil porous. Germinate the seeds and grow the seedlings as advised for Peas.

Seakale.—If the requisite number of thongs has not already been prepared, the work should receive immediate attention. Choose straight pieces of roots and cut them into six-inch lengths, taking care to make the cut on the upper end straight across, and the lower end slanting. Tie the thongs in bundles of twenty-five, and either plunge them in boxes of sand or ashes, in a cold frame, or outside in similar material, covering them to a depth of about three inches to exclude frost. The object is to have the cuttings well callused before planting-out time arrives.

Seed Potatos.—These should now be placed in boxes to sprout. Keep the tubers in a light, airy, frost-proof place, as much of the success with the Potato crop depends on the sets having sturdy shoots.

Root Store.—During bad weather look over all roots in store and remove any that are showing signs of decay.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to COLONEL SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Vineries.—The vines in the early Muscat house may be started now. Maintain a temperature of 48° to 50°, and a moist atmosphere by sprinkling the walls and all bare spaces with water. The vines may be syringed twice a day in fine weather until the buds have broken freely. Where several laterals develop from the same spur, remove all the weakest shoots so soon as possible. Prune the vines in all the late houses so soon as the Grapes are cut, for nothing will be gained by leaving them on the vines after this date as they will keep as well, or better, in the Grape room, where a temperature of 43° to 45° is maintained. Examine the border, and water the soil if necessary. Wash all glass and woodwork and whitewash the walls with a mixture of hot lime and sulphur. Cleanse the rods with soft soap and sulphur; unless the vines are infested with mealy bug only strip off the loose bark. Remove the top soil down to the roots and then dust the surface with vine manure. Take away the old soil and substitute a mixture of fresh loam, lime rubble and burnt ash or charred soil. Should lime be absent in the soil this material should be scattered evenly over the border and lightly forked into it. When the vines have been pruned and cleansed keep the house dry and cool, as a perfect rest is of paramount importance to the vines.

Pot Fruits.—Those who are in a position to start a dozen or two pot trees of the earliest kinds of Peaches and Nectarines may defer closing the first Peach house until well after the turn of the year. Stone fruits of every kind do well in pots when judiciously managed under glass. Some kinds of fruits, as a matter of course, force better than others, but if properly prepared and treated on rational principles, all may be induced to yield ripe fruits long before the same varieties on open walls yield ripe crops. The chief requirements are to grow well-established trees in light, well-ventilated houses furnished with sufficient fire-heat to keep out frosts. Experienced growers buy maiden trees, pot them and grow them on in the garden as reserve stock. Amateurs who have not this convenience need not despair, as any nurseryman who specialises in orchard house trees will supply him with perfect trees at reasonable prices. In selecting trees from the nursery choose those with moderate, short-jointed shoots, well-balanced heads and clean stocks, in nine-inch pots. Collections have given place to selections, and none but the very best sorts of their kind should have space under glass. The secret of success in forcing fruit trees is the avoidance of a high temperature and a close atmosphere when the weather is fine, also not to allow the thermometer to fall below 40° in severe weather. The trees should not be forced unduly, especially Plums, Cherries and Apricots, but this also applies in a slightly lesser degree to Apples and Pears.

Cucumbers.—Guard against overcropping the plants in bearing and keep a sharp watch for thrips. Allow the shoots to grow freely to promote root-action. Apply a top-dressing of loam mixed with a little leaf-mould or old Mushroom-bed manure when necessary, and see that the top-dressing is of the same temperature as the bed when it is applied. Keep the night temperature at 65° to 70°, and 75° to 80° by day, and have recource to covering the glass with mats when cold winds and frosts prevail. Admit a little air daily when the weather is favourable for ventilating, and give the roots weak liquid manure when a stimulant is required. Make a fresh sowing to raise plants for spring supplies

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN Brocket Hall, Hertfordshire.

Begonia Gloire de Sceaux.—This Begonia is not grown nearly so extensively as it deserves to be. It is undoubtedly a fine plant when it is well-grown but, like most of the other Begonias, it will not thrive in a smoky and foggy atmosphere. The plants are coming into flower and where they have filled their receptacles with roots they should be fed liberally with liquid manure and never allowed to become dry at the roots, or the flowers will fall off before they open. The top ventilators should be kept closed in foggy weather.

Stove House.—The work of cleansing this house and sponging the plants in it should receive timely attention, for with the lengthening days other pressing work will be forthcoming and this house may be overlooked. All creepers should be taken down and washed, and where the shoots have become crowded they should be thinned carefully, leaving no more than are necessary to furnish the space available. Any plants that require repotting or top-dressing may be attended to. Wash all the old pots for this will help to sweeten the atmosphere considerably.

Raising Plants from Seeds.—Many varieties of flowers that will make a good display for the greenhouse may be raised from seeds, also others suitable for decorative purposes. Subjects that should be sown now include Begonias, Gloxinias and Achimenes, also such foliage plants as Asparagus plumosus nanus, A. Sprengeri and Grevillea robusta. The seed-pans should be well-drained and filled with a light, sandy compost made moderately firm, and the soil watered with a fine rose can sometime before sowing takes place. The seeds of these flowering plants are very minute and should be distributed carefully over the surface; they will not need covering with soil. The receptacles should then be placed in a brisk heat, covered with a piece of glass and shaded from bright sunshine until germination takes place. Watch carefully for the seedlings to appear, and so soon as they can be handled transfer them to pots filled with new soil. Success will depend on the treatment given to the seedlings in their early stages. They may be grown successfully by repotting them on frequent occasions in sweet soil. Seeds of the foliage plants mentioned are sometimes a long time germinating, which may be hastened somewhat by soaking them for about twelve hours in water warmed to about 100°. These foliage plants are almost indispensable for decorative purposes and are very easily cultivated. The soil for raising the seeds may consist of equal parts peat and loam, with a liberal amount of coarse sand to render the compost porous. A brisk temperature is needed to raise these plants successfully. They may be increased by dividing the roots, but I prefer raising a batch from seeds each year.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet, Middlesex.

Espalier Trees.—Young trees that have not furnished the space available will need very careful attention. Cut back the central leader each year just above where the next pair of branches are required, allowing one bud to form the upright leader and one on each side for the side tiers. Prune the side-shoots forming the tiers to within fifteen inches at each pruning until they have reached their limit, and shorten all other shoots that are not required to within two or three buds from the base, to form fruit spurs. Ten or twelve inches will be ample space between the branches. Older trees which may have been neglected and become much crowded with old snags useless for the production of good, clean crops of fruits will need care and attention in the matter of thinning so as to encourage the development of plenty of sturdy fruit buds all along the branches. Heavy dressings of manure, including liquid stimulants, should be applied frequently to many of the older trees to develop strength and vigour in the buds. Those who intend to plant young Pear trees should not overlook the merits of Nouvelle Fulvie, Duchess de Bordeaux and President Barabe, which are three very useful Pears to follow November varieties.

Labelling Trees.—It is important to have all kinds of fruit trees labelled correctly; the labels should be re-written before they become illegible. There are many kinds of labels available of wood, zinc and lead. The last, stamped with the name, are the most durable. These should be secured loosely to the individual trees with copper wire so that the bark may have ample room to expand without being injured. It is advisable to keep a book of reference in which each tree should be numbered so that should any labels become worn out or lost the names may be replaced.

THE FLOWER GARDEN.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Asters.—Michaelmas Daisies may now be replanted; indeed, the strong-growing varieties should be replanted every year. Quite small portions of the plants should be selected, as three to four shoots are quite sufficient. If grown in this way and allowed plenty of room they should branch right down to the ground. Asters look best when grouped in large masses, and fit in especially well in the wilder parts of the garden, where the dressed part and wilder portions meet. Some of the varieties also are ideal for filling large beds on lawns. The variety H. Adams is very fine for furnishing a large bed, as it is very stiff and holds its shoots up well. Aster Amellus var. King George is seen at its best when filling a large lawn bed; there are, however, numerous other varieties suitable for this purpose.

Herbaceous Borders.—If not already done, advantage should be taken of fine weather to replant and rearrange the subjects in the herbaceous border. If it is necessary to replant entirely, it is unwise to clear too much of the border at once, as severe weather may intervene and delay the work. The plants removed should be labelled carefully and placed in a convenient position for replanting, covering them in the meantime with mats or canvas. When clearing the border care should be taken not to remove plants that do not quickly recover from transplanting, such as Paeonias and Gypsophila. After clearing the border it should be trenched, working in plenty of farmyard manure, using cow dung on light, sandy soils, which are also improved by the addition of good loam. Before replanting, the ground should be trodden firmly, and a dressing of lime or basic slag forked into the surface In replacing the plants where division is necessary the outside of the clumps should be selected, rejecting the worn-out centres. In arranging the plants it will give a more pleasing effect if some of the medium-sized sorts are brought well to the front and the taller ones brought forward into the middle of the border. Where possible, interplant early- and late-flowering plants. Where it is not necessary to replant the border, a dressing of bone-meal may be forked into the soil, at the same time lifting and dividing some of the stronger-growing subjects, such as Heleniums and perennial Asters.

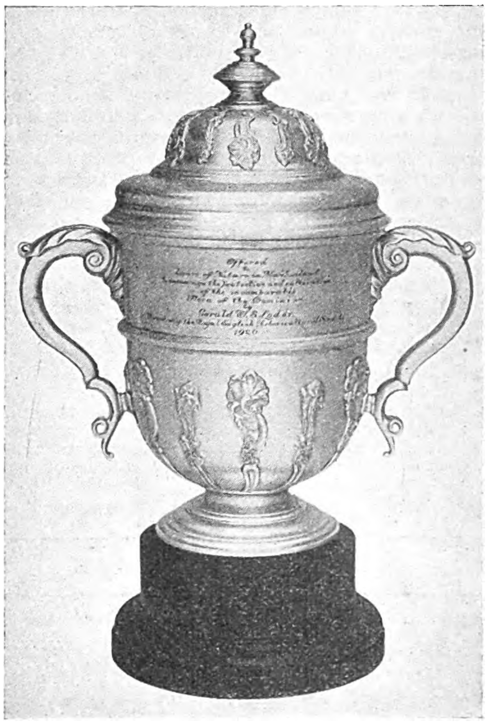


FIG. 33.—CUP PRESENTED BY MR. GERALD LODER FOR ENCOURAGING THE PRESERVATION AND CULTIVATION OF THE NATIVE PLANTS OF NEW ZEALAND.

(see p. 61).

Herbaceous Plants for Large Lawn Beds.—There are numbers of plants suitable for this purpose, and it is surprising they are not more generally used. They include Salvia nemorosa, generally known as S. virgata, which is, however, a very inferior plant; Salvia uliginosa, which is not very hardy except on dry, warm soils; Achillea filipendulina, Heleniums, such as H. Riverton Beauty and Riverton Gem, H. autumnale pumilum, H. Crimson Beauty, Bocconia cordata, Anchusa italica var. Dropmore and Pride of Dover, both of which succeed best when raised each year from root-cuttings. Some of the choice Asters, Phloxes and Paeonias are also suitable for this purpose. They may be interplanted with Narcissi, which are beautiful when in flower with the young, brightly-coloured shoots of the Paeonias. A late display may also be obtained by interplanting with Gladiolus or Hyacinthus candicans. Acanthus mollis is also very effective in lawn beds, especially where a foliage effect is desired. Eryngium planum, which is best raised from seeds each year, is suitable, also the biennial E. giganteum; if E. planum is interplanted with Campanula persicifolia, a prolonged display is secured. There are many fine varieties of Campanula persicifolia and they make very effective lawn beds. Hollyhocks, raised annually from seeds are, in certain situations, very effective for the purpose, as also are Delphiniums. Cimicifuga simplex, a beautiful, late-flowering plant, is also very beautiful in a moist, partially shaded situation.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Aysrhire.

Hot-beds.—Where plentiful supplies of stable litter and fresh leaves are obtainable hot-beds form the most economical means of supplying a steady bottom-heat for the production of early supplies of vegetables. The materials should be mixed thoroughly and made into a large heap. After fermentation sets in, the heap should be turned again to bring the heated parts to the outside of the new heap so that the mass may be of as uniform a temperature as possible. When it is evident on examination that the temperature of the heap has again reached a high degree, the hot-bed should be formed. The size of the bed should be determined by the size of the portable frames employed, but it is advisable to allow not less than three feet extra all around the frame or frames, and a depth of from three to four feet of the fermenting materials. When the frames are in position, a fair amount of good soil should be placed in them, and the whole allowed to settle for a week or so before planting or sowing the crops.

Tomatos.—Plants intended for early cropping, which have been wintered on shelves in small pots, should now be transferred to larger pots. Use a compost of light texture and pot firmly. After repotting them the plants may be grown in full exposure to light in a warmer house for a week or two to encourage root-action, which at this season of the year is very slow. Seeds may be sown to raise plants for successional cropping, but it is advisable to defer the main sowing until February. Many Tomato plants are spoiled in the seed-pan through sowing the seeds far too thickly; the seedlings should not be less than one inch apart.

Hippeastrums.—Plants which have been resting since last September should now be ready for starting again in order to produce early flowers. The soil should be well-soaked with tepid water before placing the plants in their growing quarters, and so soon as the flower spikes or tips of the leaves are seen they should receive a top-dressing of good soil. The repotting of Hippeastrums is best done immediately after they have passed out of flower, as then they have plenty of time to fill their new pots with roots, which is necessary if the best results are to be obtained. Frequent applications of liquid manure during the growing season, which extends from March to September, will enable the plants to produce a fine display of flowers while growing in pots of a moderate size.

Cypripedium insigne. — This Orchid will produce a crop of flowers from November to February with the minimum of attention; the ease with which the flowers are produced, added to the longevity of the plants and the considerable time the flowers remain fresh when cut, make Cypripediums exceedingly valuable during the winter. Cypripedium insigne and its varieties are readily increased by division, and undoubtedly young plants develop very much finer flowers on longer footstalks, but the older plants, if fed generously with diluted liquid manure during the summer are capable of producing large numbers of flowers. Any dividing of the plants that may be decided on is best performed immediately after the flowers have faded, and where any of the pots or pans allow, a liberal top-dressing of fibrous turf, rough leaves and Sphagnum-moss should be pressed firmly over the exposed roots, this top-dressing being, in many cases, preferable to placing the plants in larger receptacles.

NOTES FROM WISLEY.

AMONG other successful alterations which have recently been carried out at Wisley is the formation of a new Fernery. It has been made on the banks of the ditch which divides the field garden from the Pinetum, and which was previously overgrown with trees and Brambles. The latter have been removed and a complete clearing has been made save for one shapely Alder. Most of the Ferns which occupied the old Fernery in the wild garden have been transplanted to these new quarters. An exception, however, is a group of Lomaria boryana (syn. magellanica) whose large, evergreen fronds are particularly welcome at this time of year.

On the rock bank in front of the laboratory Erica darleyensis is in bloom. Although only a single plant it already covers an area of about forty square feet. In addition to flowers, a variety of colour is provided on this bank by the brilliant red rosettes of Saxifraga cuneifolia var. subintegra, by the Beet-like foliage of Ajuga reptans purpurea, the red-brown leaves of Polygonum affine, and by grey-foliaged subjects, such as Stachys lanata and silvery Cerastiums, while light green Mosses are now conspicuous against the brown stones. The foliage of Saxifraga afghanica and S. Beesiana is also ornamental and makes an effective winter edging to the sides of the path down to the field garden.

Among the shrubs Hamamelis mollis is already putting forth from its branches a few yellow threads. Although a deciduous plant, it has this year retained large numbers of its old and withered leaves. In the new borders several pale pink flowers are visible on Prunus subhirtella var. autumnalis, which begins to bloom in October and continues the flower spasmodically throughout the winter until the end of April. A peculiar feature of this plant which has been noted by Wilson is that on some individuals the leaves and flowers unfold in the spring at the same time, and the peduncle is then much elongated. Such individuals look entirely different to the plant in its normal state, and whether the flowers open before or at the same time as the leaves is not fixed but may vary on the same individual from year to year.

In the same borders Sycopsis sinensis is in bloom. The yellow, staminate flowers are in heads surrounded by brown, hairy bracts, but they are so small that they may easily pass unnoticed. The best feature of this shrub is its evergreen foliage. Another handsome evergreen is Arbutus hybrida, of which the drooping panicles of white bloom are just beginning to show. It is intermediate in character between Arbutus Andrachne and A. Unedo. A small tree of the latter is to be found in the garden, but the situation and climate do not favour the production of its Strawberry-like fruits. There is also a fairly large tree of Arbutus Menziesii in the wild garden, which is now attractive on account of its bright red bark.

Other trees which are exceptionally conspicuous in this respect are the Birches, of which several different varieties are planted near the field garden pond. One of the most handsome is Betula nigra, the Red or River Birch. Its bark ranges in colour from silver-grey to red-brown, and usually presents a torn and ragged appearance. Another attractive variety is Betula kenaica (Koehnei ?), the stems of which are orange and covered with white bloom. In addition to the common Silver Birch, of which there are many in the wild garden wood, there is a specimen of a weeping variety of the latter, Betula verrucosa pendula Youngii. Its stem is only visible when the leaves have fallen, since the surrounding branches extend right down to the ground and effectually hide it.

In the new alpine house Saxifrages, such as Saxifraga lilacina, S. Irvingii, S. apiculata and its white variety alba, are in bloom in company with hybrid Primroses. Auriculas and Primula megasaefolia. The last is also in bloom in the open, where its large, round leaves are much bigger and tougher than tho e in the alpine house. It occurs naturally on the mountains of Asia Minor. *J. E. Grant-White.*

NOTES FROM EDINBURGH.

COMPARATIVELY open weather has been experienced here this winter, with the exception of a few showers of sleet and a slight fall of snow. These climatic conditions, from the gardener's point of view, are to be regretted, but on the other hand they have been the means of giving a few plants the opportunity of flowering much earlier than they otherwise would have done had frost held them in check. In many instances growth has started, and the spring-like appearance of shoots and leaves may be checked before the present month is out.

There is nothing more beautiful and natural in a garden than a group of Primula Winteri peeping out from their shelter among the snow. This captivating Winter Primula is, to say the least, a gem. Its purple or blue rosette of flowers is surrounded by yellow-mealy foliage, and the stems, although short, give the flowers just sufficient support to show their beauty. It is of a dwarf habit and should be planted six to eight inches apart to allow for growth expansion. In the rock garden it grows on a ledge in the shelter of a sand-stone boulder partially shaded by a clump of Rhododendron rigidum. Rosettes of from twenty-five to thirty flowers are at present in full bloom. Where conditions tend to excessive moisture, sheets of glass may be used for protection in winter, and no pains should be spared to pollenate a few flowers to ensure a sufficient quantity of seeds for future use. It is a native of the Himalayas and is to be commended to lovers of the genus.

Other members of the same family, though common but more appreciated at this time of the year, are P. officinalis and P. vulgaris. They are to be seen by the banks of the pond and in sheltered parts of the wild and rock gardens.

Far removed from its flowering season, a good specimen of Meconopsis integrifolia var. brevistyla has dared the winter and produced a large, yellow flower on an undeveloped spike which gives signs of producing more. It is difficult to give the reason for this premature flowering, but it may be that the plant is making up lost time, or it may be a trick of nature. So far, few have met with success in flowering this beautiful Meconopsis in gardens.

Christmas Roses are among the winter-flowering subjects, and give of their best in sheltered quarters. Helleborus niger is too well-known to need comment. H. viridis with its green flowers may be considered beautiful when few flowers are available to pick and choose from.

Representatives of Saxifraga Burseriana hold out hopes of making a good display later. At present two forms, minor and magna, have numerous open flowers, and although the slight covering of snow has hid the plants from view, they will come up smiling and refreshed when the thaw sets them free. These members of the Saxifraga family are compact, beautiful plants, and may be grown by any one with excellent results.

Growing in a sheltered part of the border, Colchicum syriacum has brightened the surrounding dullness by producing some very fine, pink flowers. Annually flowering in December or January, it is a most attractive bulbous plant.

Gentiana rigescens, a native of China, has a long flowering season in winter, and it may be counted on producing flowers from November to January. The long stems of pale blue flowers are most useful for cutting, and the plant fills up an otherwise flowerless period. It is of easy cultivation by division. Seed is difficult to obtain in view of the time the plant is in flower.

Perhaps more attention ought to be paid to the Snowdrop, Galanthus nivalis and its varieties but no description seems necessary, as every one is familiar with these harbingers of spring. *Alex. McCutcheon.*

NEW HYBRID ORCHIDS.

(*Continued from December* 18, 1926, *p.* 486).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Renown	B.-C. Digbyano-Mendelii × C. Maggie Raphael alba	Sanders.
Brasso-Cattleya Rose Marie	B.-C. Nestor × C. chocoensis	Black and Flory.
Brasso-Laelio-Cattleya Elysian	B.-L.-C. Lady M. Buller × B.-L.-C. The Baroness	Armstrong and Brown.
Brasso-Laelio-Cattleya Mithra	B.-C. Sofrano × B.-L.-C. Amber	Baron Schröder.
Cattleya Molly	labiata × Tityus	Black and Flory.
Cattleya Mrs. J. Sutton	Lady Veitch × O'Brieniana	Sutton Bros.
Cattleya Noel	armainvillierensis × Leda	Sanders.
Cattleya Princess Astrid	Alexandra × Princess Royal	Black and Flory.
Cypripedium Alcivana	Alcibiades × Nirvana	A. L. Keeling and Son.
Cypripedium Bromilowianum	Selene × Christopher	H. J. Bromilow, Esq.
Cypripedium Cerberus	Lady Dillon var. Bulldog × Satyr	Mrs. Bruce and Miss Wrigley.
Cypripedium Flodden Gaston Bultel	King Edward VII × Baron Schröder	C. Cookson, Esq.
Cypripedium Grenadier	Dreadnought × Tantroilus	Mrs. Bruce and Miss Wrigley.
Cypripedium Hexham	Arachne × Tracyanum	C. Cookson, Esq.
Cypripedium hortense	Gowerianum Gratrixianum × callosum Sanderae	S. Low and Co.
Cypripedium Kelso Gaston Bultel	King Edward VII × Bantam, Cookson's variety	C. Cookson, Esq.
Cypripedium Marjorie Eaglesfield	Earl of Tankerville × Dixon Thorpe	D. Losh Thorpe, Esq.
Cypripedium Meta Troilus	Impregnable × Alcimeda var. Strelsa	Mrs. Bruce and Miss Wrigley.
Cypripedium Mona	Perseus × Draco	Cowan and Co.
Cypripedium Nora	nitens Leeanum × Brighteyes '	Cowan and Co.
Cypripedium Pauline	Holdenii × Lawrenceanum Hyeanum	Stuart Low and Co.
Cypripedium Phillida	chrysotoxum × Aeson giganteum	Cowan and Co.
Cypripedium Rizzio	Lord Wolmer var. Hermes × Mario	Mrs. Bruce and Miss Wrigley.
Cypripedium Tyneside	Sir Douglas Haig × Sanderae	C. Cookson, Esq.
Cypripedium Valiant	Alcibiades illustris × Moira	C. Cookson, Esq.
Cypripedium Yellow Bird	Selene × concolor	H. J. Bromilow, Esq.
Cypripedium Yorkist	keighleyense × Tantroilus	Mrs. Bruce and Miss Wrigley.
Laelio-Cattleya armeniaca	L.-C. Thyone × C. Lord Rothschild	Black and Flory.
Laelio-Cattleya Liège	C. Alfred Dimmock × L.-C. callistoglossa	Sanders.
Laelio-Cattleya Mons	C. Dowiana × L.-C. J. F. Birkbeck	Sanders.
Laelio-Cattleya Theodora	C. Empress Frederick × L.-C. Bella	Stuart Low and Co.
Laelio-Cattleya Yukon	L.-C. Schneideri × C. Mrs. Pitt	Sanders.
Miltonia Adela	Lena × Princess Margaret	Charlesworth and Co.
Miltonia Cecilia	Constance × Bleuana	Charlesworth and Co.
Odontioda Helsa	Oda. Chanticler × Odm. Prince Albert	Charlesworth and Co.
Odontioda Herald	Oda. Charlesworthii × Madeline	Charlesworth and Co.
Odontioda Indra	Oda. Charlesworthii × Oda. Chanticler	Charlesworth and Co.
Odontioda Noel	Oda. Lambeauiana × Odm. crispum	Charlesworth and Co.
Odontoglossum Frank Reader	King Albert × General Foch	Armstrong and Brown
Odontoglossum Ionian	Gorizia × l'Empereur	Charlesworth and Co.
Odontoglossum Penelyus	Penelope × Tityus	Charlesworth and Co.
Odontoglossum Santa Claus	Phoebe × triumphans	Mrs. Bruce and Miss Wrigley.
Odontoglossum Woodside Gem	illustre × Groganiae	Sutton Bros.
Odontonia Aloma	O. Leila × M. Prince Imperial	Charlesworth and Co.
Odontonia flaveola	O. Megali Sander xanthotes × Odm. Boadicea aureum '	Charlesworth and Co.
Sophro-Laelio-Cattleya Garnet	S.-L.-C. Marathon × C. Rhoda	Charlesworth and Co.
Sophro-Laelio-Cattleya Royal Purple	S.-L.-C. Niobe × S.-C. Blackii	Black and Flory.
Vuylstekeara Merola	M. Charlesworthii × Oda. Hemera	Charlesworth and Co.

PLANTS IN FLOWER AT LA MORTOLA ON JANUARY 1, 1927.

The following list of plants in flower at La Mortola on January 1, 1927, enumerates only 265 as against 401 in 1906. The list was forwarded by Mr. S. W. McLeod Braggins.

Abelia chinensis, Abutilon Darwinii, A. hybridum, A. insigne, A. striatum, Acacia Baileyana, A. decurrens, A. Hanburyana, A. microbotrya, A. neriifolia, A. podalyriaefolia, A. retinodes, Agathea coelestis, A. hispida, Agave Katherinae, A. Karwinskii, Ageratum mexicanum, Albizzia lophantha, Aloe affinis, A. arborescens natalensis, A. ciliaris, A. longiflora, A. Pienardii, A. rubrolutea, A. speciosa, A. supralevis, Alyssum maritimum, Andropogon hirtus, Anemone coronaria, Antholyza aethiopica, A. paniculata, Antirrhinum majus, Aponogeton distachyum, Arbutus Unedo, Arum Arisarum, Asparagus aphyllus and Azalea indica.

Begonia miniata, B. macrophylla, B. Rex, B. semperflorens, Bellis sylvestris, B. perennis fl. pl., Bergenia crassifolia, Bignonia australis, B. venusta, Borago officinalis, Bougainvillea glabra, B. Sanderiana, B. spectabilis, Bryophyllum crenatum, Bouvardia coccineum, Buddleia asiatica, B. auriculata, B. madagascariensis and B. officinalis.

Calendula officinalis, Camellia japonica, Campanula Trachelium, Canarina Campanula, Carica Papaya, Cassia artemisiodes, C. tomentosa, Casuarina torulosa, Catha edulis, Ceanothus azureus, Cephalotaxus drupacea, Cestrum aurantiacum, C. lanatum, C. Parqui, C. suberosum, Cheiranthus Cheiri, Chimonanthus fragrans, Chlorophytum elatum, Chrysanthemum frutescens, Cocos Romanzoffiana, Cineraria stellata, Citrus Aurantium, C. Medica, Clematis cirrhosa, Clerodendron ugandense, Colletia cruciata, C. spinosa, Correa Lawrenceana, Coronilla glauca, Cotyledon macranthum, C. orbiculare, Crassula congesta, C. lactea, Crotolaria capense, Clyclamen persicum and Cyperus alternifolius.

Datura chlorantha, Dimorphotheca aurantiaca, D. Ecklonis, Dianthus arboreus, Diplopappus filifolius, Dodonaea Thunbergiana and Duvernoya adhatodoides.

Echeveria multicaulis, E. pachyphytioides, Elaeagnus pungens reflexa, E. macrophylla, Ephedra altissima, Eriobotrya japonica, Eriocephalus africanus, Eucalyptus coriacea, E. creba, E. glabrata, E. Globulus, E. sideroxylon, Eupatorium grandiflorum, E. micranthum, E. album, Euphorbia grandicornis, E. triangularis and Euryops spathaceus.

Freylinia oppositifolia, Fuchsia aborescens, F. hybrida and F. triphylla.

Gasteria acinacifolia, Gerbera hybrida, Globularia Alypum, Grevillea Thelemanniana and Gynerium argenteum.

Hakea cristata, H. laurina, H. scoparia, H. suaveolens, Halleria lucida, Hedera canariensis, H. Helix, Hardenbergia monophylla, H. m. rosea, Heliotropium peruvianum, H. hybridum, Helleborus hybridum, H. foetidum, Hexacentris coccinea and Hibiscus macrantha.

Iberis semperflorens, I. sempervirens, Iochroma lanceolata, Iris unguicularis and I. u. alba.

Jacobinia pauciflora, J. Penrhosiensis, Jasminum nudiflora, J. primulinum and Juniperus Oxycedrus.

Kalanchoe Dyeri, K. somaliensis, K. thyrsiflora, Kleinia madrasiskae and K. neriifolia.

Lantana Camara, L. nivea, Lathyrus sativus, Laurus nobilis, Linaria bipartita, Lavandula abrotanoides, L. dentata, Leptodermis lanceolata, Lonicera Standishii and Lopezia miniata.

Malcomia maritima, Malvaviscus mollis, Mesembryanthemum aequilaterale, M. elegans, M. linguiforme, M. molle, M. tigrinum, Montanoa bipinnatifida, M. tomentosa, Monstera deliciosa, Moricandia arvensis, Muehlenbechia Cunninghamiana and Musa Ensete.

Narcissus canariensis, N. Tazetta aureus, N. T. polyanthus and Nicotiana glauca.

Osmanthus Aquifolium, O. fragrans, Othonna triplinerva, Oxalis cernua and O. purpurea.

Passiflora capsularis, Pelargonium lateripes, P. peltatum, P. zonale, Phylica rosmarinifolia, Pilocarpus pennatifolius, Pithecotenium buccinatorium, Plumbago capensis, Poinsettia pulcherrima, Polygala myrtifolia, P. apopetala, Primula kewensis, P. malacoides, P. obconica. P. sinensis, P. stellata and Pyrus spectabilis.

Raphiolepis indica, Reinwardtia trigyna, Reseda Phyteuma, Rhipsalis Cassytha, Rhus integrifolia, Rosa Bourbonia, R. indica, R. i. major, R. i. semperflorens, R. multiflora nana, R. sinica anemonaeflora, R. Thea Safrano, Rosmarinus officinalis, R. humilis, Ruscus Hypoglossum, Ruscus Hypophyllum and Russelia juncea.

Salvia cacaliaefolia, S. chamaedryoides, S. gesneraeflora, S. amarissima, S. Heeri, S. involucrata, S. leucantha, S. leonoroides, S. semiatrata, S. Sessei, Schinus Molle, Sarcococca pruniformis, Sempervivum arboreum, S. holochrysum, Senecio angulatus, S. grandiflorus, S. longifolius, Sida mollis, Solanum Hartwegii, S. jasminoides, S. nigrum, S. Pantonnettii, Sphaeralcea umbellata, Statice brassicaefolia, Stenolobium stans, Syringa vulgaris and S. persica.

Tagetes lacera, Tecomaria capensis, Templetonia retusa, Tetrapanax papyriferum and Tropaeolum majus.

Ulex europaea.

Verbena officinalis, Veronica Andersonii, V. salicifolia, Vinca major, V. media, Viola odorata, V. cornuta, Visnea Mocanera, Vittadinia triloba.

Westringia rosmariniformis.

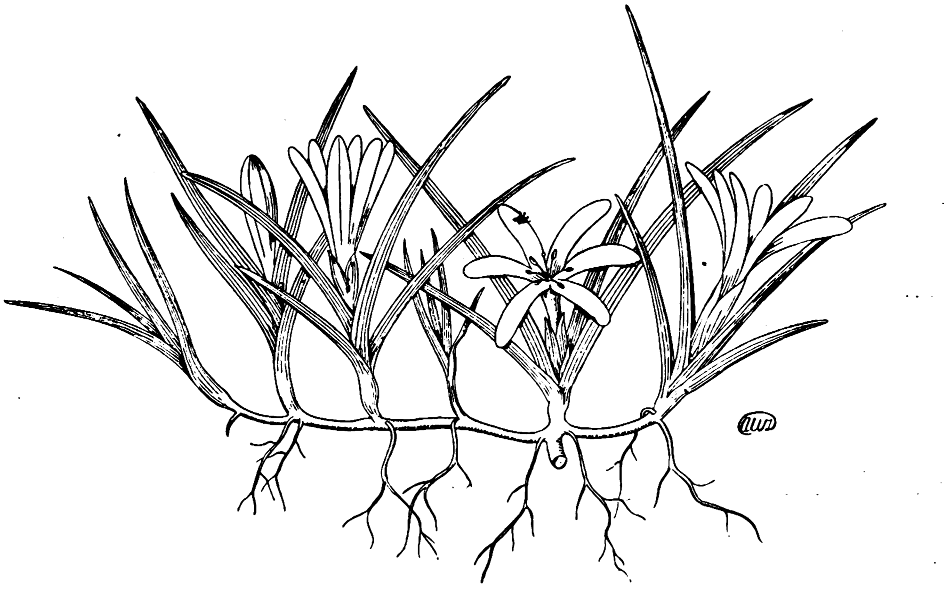


FIG. 34.—HERPOLIRION NOVAE-ZELANDIAE.

ALPINE GARDEN.

HERPOLIRION NOVAE-ZELANDIAE.

This exquisite little alpine plant (Fig. 34) is a member of the Natural Order Liliaceae ; it forms large patches of verdure on the brinks of pools and other moist places in the Baw Baw Mountains of Victoria, at various elevations up to 4,500 feet, and on the summit of the western mountains and Hampshire Hills of Tasmania ; it is also found in swampy places on the Southern Alps of New Zealand at sufficiently high altitudes to ensure its complete hardiness in the south of England.

The plant forms turves of spreading, grassy growths from two to three inches tall; the under-ground portion consists of numerous branched, creeping stems from which many fairly stout, fibrous roots spring. The foliage rises from nodes on the creeping stems ; it is tufted, and consists of from three to six narrow, sharply pointed linear leaves from one to three inches in length ; they are of a glaucous green colour and deeply grooved.

The pretty blossoms are solitary and borne on very short stems, clothed with a few narrow, sheathing bracts; they nestle in the centres of the tufts of leaves. The perianth is divided almost to its base into six strap-shaped segments about three-quarters-of-an-inch in length and an eighth-of-an-inch in width, rounded at the tip and narrowing towards the base ; they vary in colour from waxy white to a beautiful pale blue.

The six large, bright yellow anthers are borne on white filaments three-quarters-of-an-inch in length. The blossoms, when fully expanded, are over one-and-a-quarter-inch in diameter and last in perfection a considerable time.

Herpolirion Novae-Zelandiae blossoms in September and October and may be given a damp or boggy spot in the rock garden, in a compost of peat and sand, in a position fully exposed to the sun ; it lends itself to increase by division which may take place just before the leafy growth commences. Some protection from damp should be given in winter as the plant is covered with snow during the winter of its native countries. *A. W. D.*

BOG GARDEN.

USEFUL PLANTS FOR MOIST PLACES.

The beauty and interest of a water garden is greatly enhanced by a well-kept grass bank in which may be planted at intervals of a few feet such bog and moisture-loving plants as Senecio clivorum, two feet ; Iris aurea, four feet ; I. Monspur, four feet ; I. Shelford Giant, five to six feet ; I. orientalis, four to five feet ; I. Kaempferi, in many shades of beautiful colours, three feet ; I. pseudacorus in yellow and white, four to five feet ; Lythrum Rose Queen, four feet ; Astilbe Arendsii in variety and A. Davidii ; Spiraea Aruncus ; S. venusta ; S. gigantea, from three to six feet, a very effective plant ; Trollius in variety ; Mimulus in variety ; Saxifraga peltata with large, bronzy, peltate leaves and corymbs of white flowers, a very showy water-side plant ; Rodgersia podophylla, a handsome foliage plant, the large, peltate leaves on stout stalks, three feet high, assuming a coppery bronze colour with age ; Gunnera manicata and G. scabra, both handsome plants with gigantic leaves on stout stalks ; Primulas in variety, also the Royal Fern, Osmunda regalis, in variety, and Lastrea Thelypteris, both pretty waterside Ferns.

Many may venture on the hardy Cypripedium Calceolus, C. pubescens and C. macranthum, also hardy species of Orchis and Habenaria for the more shady parts ; these Orchids grow splendidly in damp moss and sand.

There is an abundance of grass-like plants and Reeds which are indispensable for the bog garden and waterside planting. They give tropical effect to the surroundings, especially the taller Bamboos, which do well when planted in positions sheltered from high winds. *W. L.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

LILIES IN 1926.

METEOROLOGICALLY 1926 will go down as a year of many records, in which a mild February, dry and sunny March and excessive November rainfall figure prominently, but though the prolonged fine weather of August and September brought out all that is best of the small late-flowering group, there was nothing, so far as Lilies were concerned, except a serious want of sunshine, to distinguish 1926 from other mediocre years.

In the home counties June and July are the months when the early and mid-season species make their display, and if the weather is against them then, there can be no recovery, as with garden Roses, in a fine autumn. At such times gardeners must acquiesce in a condition of affairs they can neither alter nor control, and fall back on the mainstay of all who cultivate a garden for pleasure or profit—the anticipation of a better time next year.

Except for an unusual period of cold weather before Christmas and a brief but severe spell in mid-January, the winter of 1925-1926 followed a course to which many more or less similar seasons have accustomed us, and one more year passed without the great frost of the century. A February dull but soft beyond all records spurred Lilies on, and when the wind blew in from the east half-way through March, precocious growth paid the usual and almost inevitable penalty. Watching some more or less exposed plants of L. Hansonii on March 23, when the wind blew with razor-like keenness against which no amount of clothing seemed proof, one could see the leaf-edges of this Lily curling over and changing colour as if seared by a hot iron; and though not then so forward as L. Hansonii, the foliage of a group of L. regale in an open border was served in the same cruel fashion, for all that the exposed thermometer gave no indication of exceptional cold.

Towards the end of March, after an exceptionally dry time, an interval of warm, sunny weather with welcome showers brought plant life on with a rush; it was a short-lived rush, however, for the wind soon backed into the east again and remained in that vicious quarter throughout April. Day after day of early May passed without relief, and when, on the 16th of the month, a snowstorm raged on the Cotswolds and the Chiltern Hills, it seemed that the gardener's cup of misery was full. A pleasant spell of genial weather at Whitsuntide proved only a flash-in-the-pan, and June was more remarkable for consistently un-June-like weather than for anything else. Ground frosts at midsummer are no novelty to these annual chronicles, but a series of five on consecutive nights is happily rare.

Except for a welcome burst of real summer in the second week of July, that month was as dull and frigid as June, and with the best of the garden year gone, it seemed as if 1926 would have to be bracketed with 1922 as a black year. Fortunately, this was not to be, for August brought the much-needed relief and, incidentally, an excessive, almost West African humidity of the atmosphere, which prevailed from the last week of the month till the middle of September, and made the lack of rain less noticeable. An unusually fine October furnished a happy ending to as enjoyable an autumn as anyone could wish for, and if the record was subsequently washed out by the floods of November, the beneficent effect of the autumn should be apparent before along. The fact, however, that the gardener has to search for blooms of Iris unguicularis at the present time when he would expect the plant to be in profuse and precocious flower as a result of the roasting autumn weather, seems to show once more that theory and practice do not invariably agree. The November rains may provide an explanation.

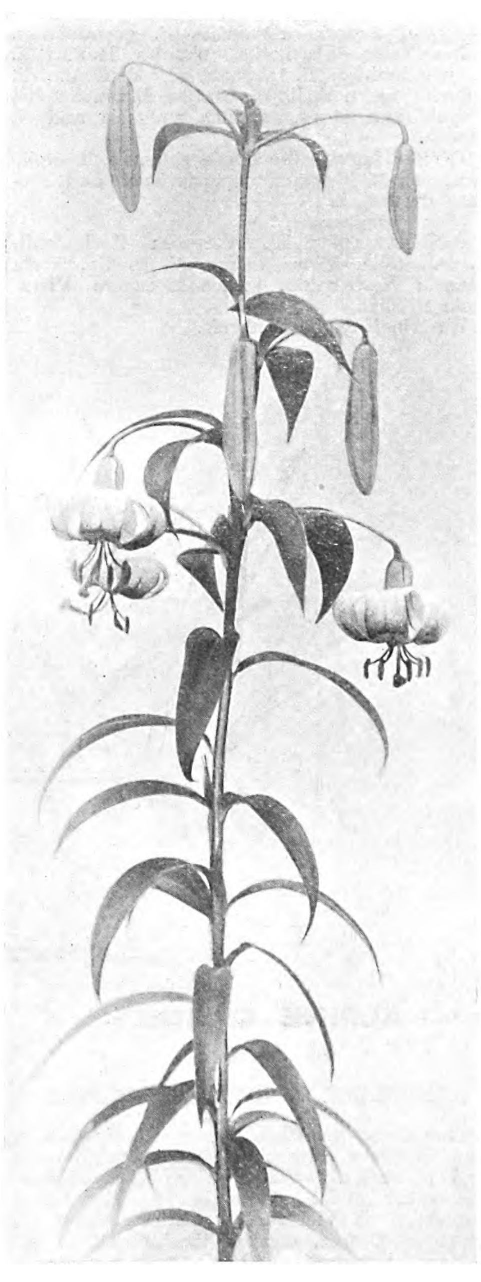


FIG. 35.—LILIUM OCHRACEUM (WILS.)

Photographed in the Duke of Bedford's garden at Endsleigh in 1925.

As already explained, the fine autumn retrieved the Lily season from absolute failure, but that does not necessarily imply that the June and July flowering Lilies failed in all southern gardens. Weather conditions vary widely even in areas adjacent to each other, and it is possible that even L. candidum, which was generally a failure, may have been the reverse in some places. But the cold and comparatively sunless months of April, May, June and July favoured that scourge of English gardens—Botrytis cinerea—and it was rampant. For a plant disease which seems to have been unknown or, at any rate, unrecognised in Britain much before the 'eighties, Botrytis has made astonishing headway, and though there must be many gardeners who can recall the initial attack on their own Lilies, there can be few others whose gardens are still exempt.

At this time of day it would doubtless be impossible to determine the country of origin of Botrytis, but while the disease may not yet be universal, it is certainly widespread; indeed, it is one of the plant diseases which towards the end of last century put an end for the time being to the commercial cultivation of L. longiflorum in Bermuda. It would be unfair to saddle the United States of America with the introduction of Botrytis to this country, but the disease seems to have been noticed there some time before it was recognised in Britain. Lilies are but one of the many genera subject to attack by this foul fungus, which may be seen on Lettuces, Tulips, Paeonies, Trillium, Erythronium, Narcissus and many other subjects; it has been observed, too, on the leaves of Gooseberries and Currants.[*]

Happily, the display of the late-flowering Lilies last year furnishes a less depressing topic than the all too prevalent disease referred to, for without exception they were in better form than they have been for some years. Even L. speciosum was able to unfurl its buds untouched by frost—an occurrence sufficiently rare to be noted. L. sulphureum of Baker, too, and L. Sargentiae, excelled themselves, though each is so dependent on a warm autumn as to be beyond the patience of the majority of gardeners who have no greenhouse. L. sulphureum has a serious rival now in the Lily re-introduced by Farrer from southern Kansu, and named L. centifolium (Stapf). For a plant which is usually prolific of seed, this fine Lily is slow to find its way about, but it seems generally to have a stronger constitution than any of the taller-growing Lilies of the Eulirion group with large, long trumpets, and so far seems able to adapt itself to widely different conditions—a great point in a Lily. At any rate, the writer knows of specimens flourishing on the Bagshot sand, on strongly calcareous soil, on stiff ground over clay, and on sandy loam. Other Lilies of the same general type will not suffer our winter rains, which cause the resting bulb to decay; but Farrer's Lily has been fairly well tried in this respect during the past few years and has emerged with credit. Its future behaviour will be watched with interest, for at present there is no Lily at all like it which can be regarded as perennial.

L. auratum usually grows to better effect on the west side of the country than elsewhere, but it was exceptionally good in the south last autumn, for there was neither rain nor frost to spoil the flowers. The broad-leaved form, L. a. var. platyphyllum, again showed its superiority over the type, just as the robust, upstanding form of L. speciosum, called magnificum, leaves other coloured forms far behind. Amateurs who have not grown either would be well advised to discard all others in favour of the two varieties named, bearing in mind that both are intolerant of lime.

---

[*] *Gard. Chron.*, November 27, 1926, p. 434.

Another Lily which enjoyed the autumn of 1926, but seldom has a chance to develop its flowers before they are nipped by frost is the plant so often confused with L. nepalense, but now referred by E. H. Wilson to L. ochraceum, illustrated in Fig. 35, reproduced from a photograph of a plant grown by Mr. R. F. Fitt, gardener to the Duke of Bedford, at Endsleigh. Some forms of this species raised from seed collected by Forrest and Farrer may possibly prove happier in our climate than other forms, which have been tried out-of-doors again and again, but there seems little doubt that except, perhaps, in maritime gardens in the south and west this Lily, as well as L. sulphureum and L. neilgherrense are rightly regarded as greenhouse subjects. It is only necessary to see them growing under shelter to realise the truth of this. It is possible that the same may have to be said of the Formosan variety of L. philippinense, though it appears to be holding its own tolerably well in a few favoured places. Unfortunately, with this Lily as with many others, high cultivation seems to bring retribution in its train, for the effort necessary to support a stem five feet high with five or six flowers and as many capsules of seed is often more than the naturally small bulb can bear, with the result that it dies. Happily, however, there is usually an ample measure of seed from which fresh bulbs can be quickly and easily raised.

L. pardalinum usually bridges the interval between the late summer and early autumn flowering Lilies, and though the inclement weather of mid-July delayed the opening of the flowers, they responded directly the weather changed. A good example of the successful colonisation of this species on broad, natural lines is to be found in the park at Patshull, where from a few bulbs transferred from the garden by Lady Dartmouth in 1910 hundreds of self-sown plants annually push up their stems through wild and matted undergrowth on the borders of a stream, very much, in fact, as they grow in California. To those who realise how seldom anything of the kind has been achieved in England, this colony of the Panther Lily is at once an inspiring sight and an object lesson.

Under the conditions usually obtaining in gardens, Lilies planted in borders seldom have much chance to colonise the ground by seedlings. If left alone they drop their seeds and in favourable years a proportion germinates; but between the traffic inevitable to the upkeep of herbaceous borders and the annual "forking over" of the top soil beloved of working gardeners, very few seedlings survive the yearling stage. Anyone who has seen for himself the harvest of often really precious seedlings of various plants which may be garnered from a border not systematically stirred by the fork, must have wondered whether an operation not thought necessary by Nature is not sometimes overdone by man.

An interesting little Lily, L. cernuum, which has been in the hands of one or two amateurs since bulbs were first sent to England in 1914 by M. Kesselring, of Petrograd, made a public re-appearance last year, Messrs. R. Wallace and Co., of Tunbridge Wells, having received an importation. Except in the colour of the petals and the fragrance of the flowers there is not much from the horticultural or cultural point of view between this Lily and L. tenuifolium; but each is well worth growing. It is not yet possible to say whether L. cernuum has the comparatively short life usually associated with L. tenuifolium, which, under high cultivation, exhibits that fatal facility possessed by so many plants of overtaxing its strength in flower and fruit. Wild plants of L. tenuifolium usually bear from two to four flowers on stems about twenty inches high, and the photograph (Fig. 37), kindly furnished by the Regius Keeper, of a fine specimen in the Royal Botanic Garden at Edinburgh shows of what the species is capable under cultivation. It is unlikely, however, that the bulb of the particular specimen illustrated survived the effort required to produce the effect shown in the photograph. In such cases of exuberant growth, removal of incipient seed vessels has sometimes been found to relieve the drain on the bulb of naturally short-lived species.

During the year a novel and interesting step, which may have far-reaching results for growers of Lilies, has been taken by Mr. Amos Perry, of Enfield, who has arranged for the importation of Lily bulbs grown in New Zealand. As is well-known by those interested in the cultivation of Lilies, bulbs imported from Japan and America usually reach the hands of growers between November and February, to be planted out in gardens at a time when the ground is wet and cold, in the worst possible condition, in fact. No one can say how many of these dormant bulbs ever reach maturity, but experience shows that the proportion is small. To reduce these losses and bring the bulbs to maturity expeditiously and in comparative safety, the writer has for many years advised the potting of all rare or difficult Lily bulbs for the first season, so that they may have a reasonable chance of becoming established before they are planted out. If, however, the plan initiated by Mr. Perry is as successful as seems probable, the losses of imported bulbs should be greatly reduced, because bulbs raised in New Zealand reach this country in

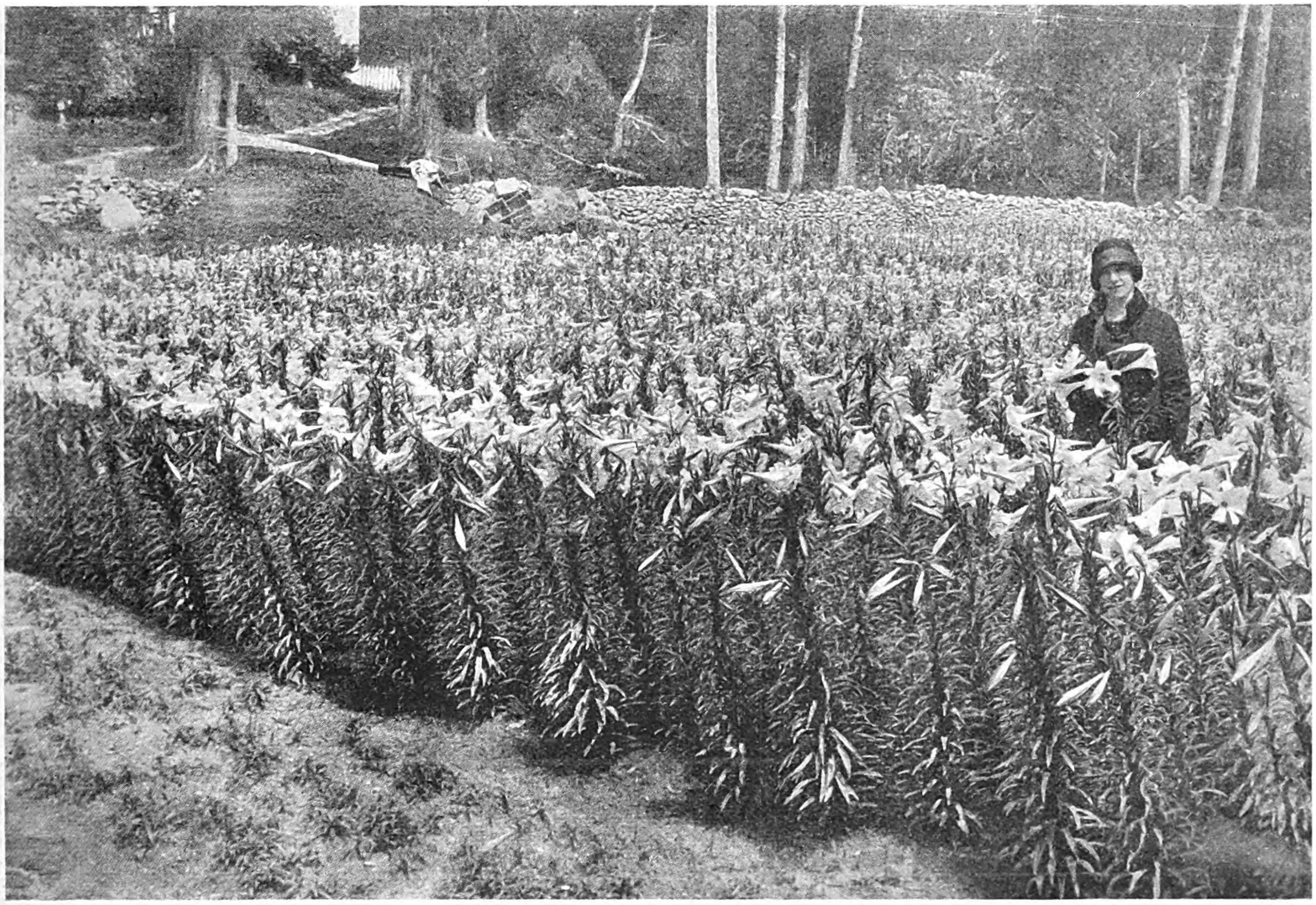


FIG. 36.—LILIUM LONGIFLORUM EXIMIUM AS A FIELD CROP IN BERMUDA

the late spring when the ground is in a far more comfortable condition to receive them than it ever can be in winter. In the result the bulbs should grow on through summer and autumn and be well established before the winter. No doubt the difference of season in New Zealand and Britain makes such an enterprise possible, but the habits of Lilies raised in New Zealand can hardly be permanently affected in such a short time, and it may be expected that the various species concerned will soon revert to their ordinary habit. So that though New Zealand raised bulbs of L. regale, for example, planted out in April may flower in the following October, they will probably flower at their normal season (July) in the subsequent year. While that, however, is of no importance, the fact that without going through an over-long period of storage, bulbs can reach England in time to be planted in early summer instead of early winter or mid-winter, should prove of great importance to growers.

No new species of Lily has made an appearance during the year, nor can very much more be expected in that direction, for the areas of the world where Lilies grow have been explored. It is to hybrids that those who care for such things must look for novelties in the future. A year seldom goes by in which one or more hybrid Lilies are not seen or heard of, and though their first appearance is often also the last, the hybrid is seldom worth many tears. Rather more than that may be said of a hybrid Lily which Messrs. Bees exhibited at Vincent Square on June 29 of last year. It is named after the late Miss Roemer, who made the cross between L. Parryi and L. parvum luteum some years ago when on Mr. A. K. Bulley's staff. Apart from the fact that it is a gentle thing in itself, the plant is a good hybrid in the sense that it combines the characters of each parent in foliage, flower and bulb. If only it has the constitution all hybrids of L. Parryi have hitherto lacked, gardeners will give Miss Roemer's Lily the welcome a well-bred plant deserves. Gentle protest has been made in these columns before now against the indefensible practice of bestowing specific names on plants of known hybrid origin, and that protest may be renewed in the case of the so-called L. Roemeri.

During the year seeds of several Lilies collected by George Forrest in his 1924-1925 exploration of south-eastern Tibet were received from Mr. J. C. Williams, of Caerhays, and have germinated. Bulbs, too, of a form of L. longiflorum reputed to be indigenous to Hong Kong have come from Mr. Tse. A point to be noted is the re-entry of Bermuda into the list of countries whence we import Lilies. An interval of about twenty-two years has elapsed since Bermuda ceased to export bulbs of L. longiflorum on a large scale, and since then this country has relied almost entirely on Japan for bulbs of this species. No doubt the commercial success of an enterprise of this nature depends mainly on questions of price and quality. Of the latter there is fortunately no doubt, and the financial side may safely be left to the Bermuda growers. The recapture of lost markets is always difficult, but with the Empire spirit abroad, the Bermuda farmer re-enters the British market with every prospect of success. The photograph (Fig. 36), reproduced by courtesy of the Director of Agriculture, Bermuda, illustrates a field of L. longiflorum eximium, and the plants show how successful the cultivation has been.

Luther Burbank, who died last year, had probably produced more hybrid Lilies than all other experimenters put together. Naturally, he made more use of the Californian species close to his hand than of species foreign to North America, and some of his L. Parryi, L. pardalinum and L. Humboldtii hybrids were robust and some very beautiful. Numbers were tried in this country many years ago, but it is doubtful if a single one remains to-day. Colonel Hugh Warrender, the distinguished amateur gardener, was an enthusiastic and successsful grower of lilies, and was always ready to help others who had not studied their cultivation so closely as he had. *A. Grove.*

PINUS LARICIO.

(THE CORSICAN PINE.)

THE illustration depicted in the Supplement Plate accompanying the present issue is from a photograph by Mr. Heyworth, Knighton, Radnorshire, and represents a small group of Pinus Laricio growing at Stanage Park.

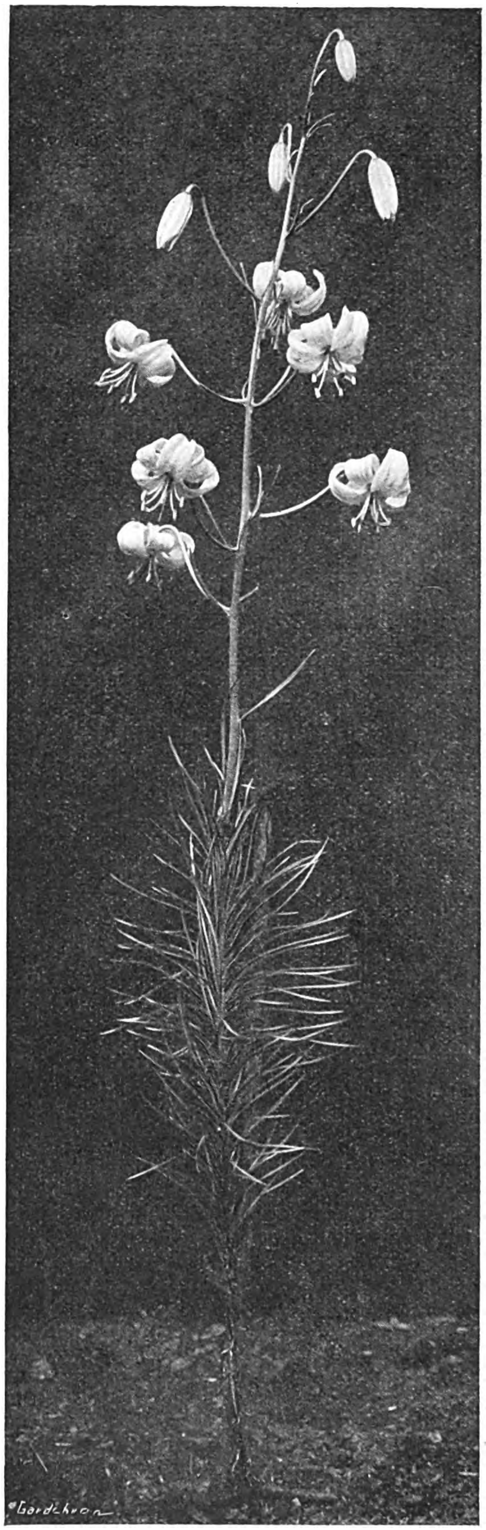


FIG. 37.—LILIUM TENUIFOLIUM

In the Royal Botanic Garden, Edinburgh, in 1925.

These Corsican Pines—or as they were called at the date of their planting, Altissima Pines—belong to a rather remarkably well-grown group of bundle-leaved members of the Pinaster sub-division, or family section, of hard-wood Pines.

The name "altissima" seems at this date to have dropped into disuse, "forgotten, and by the world forgot." Loudon mentions the fact of its being once an acknowledged name, but whether as applied to the typical representative or to some variety, he has to plead ignorance. This exempts any one to-day attempting to find a why or wherefore of its disuse, and, for the matter of that, discourages any one from trying to discover an explanation, as to why it came to be called the Larch Pine instead. Why and how these trees came to be called after a Larch is a mystery quite beyond my powers to penetrate. The Larch sub-tribe certainly has not returned the compliment and called any one of its family species, by, for instance, such a name as Larix Pinaster, which latter word is the title of the family group to which the Corsican immigrant belongs. I still am of opinion—and every one has a right to the moderate exercise of that little faculty—that our predecessors, were more happy in naming the tree "altissima" than later generations in calling it Laricio.

A little comparison with other Corsican giants, as mentioned and measured in Elwes and Henry's *Trees of Great Britain*, would, perhaps, not come in here amiss. The measurements of our five trees, referred to here, represent an average height of 117 feet and an average girth of eight-and-a-half feet at four feet from the ground. I append the measurements of our trees and of the four largest alluded to by Elwes and Henry:—

Stanage Trees.—Height 118 feet, girth 8 feet 7 inches; height 130 feet, girth 8 feet 9 inches; height 112 feet, girth 9 feet 2 inches; height 105 feet, girth 7 feet 10 inches; height 120 feet, girth 8 feet 5 inches.

Trees mentioned in *Trees of Great Britain.*—Height 119 feet, girth 8 feet 3 inches, at Brocketts; height 100 feet, girth 9 feet 3 inches, at Arley Castle; height 108 feet, girth 11 feet 5 inches, at Dropmore; height 80 feet, girth, 9 feet 3 inches, at Kew Gardens.

In all fairness, it must be noted that our Stanage trees were measured here some eighteen years after the four described by Elwes and Henry. How many cubits they may have added to their stature, and what magnitude round about they may have achieved in those fateful intervening years, it would be more interesting than possible for me to ascertain and set forth. How near, too, to the length and breadth, namely, 150 feet of height and twenty feet of girth, they may have approached in size these giants growing in their Corsican island home, I would I knew, and could tell. I can only say that if they have outgrown by this time my nominees I would be willing to back them against all comers in a group class of five.

I append an extract from notes made by my ancestor and predecessor here, in his tree-planting book of chronicles, and quote it verbatim: "In 1828, and in March, there were planted some ninety Corsican Pines, called in those days 'Altissima,' and raised from seed that came from Corsica. Some of these plants were given to Lord Grenville, and planted at Dropmore." From this account the trees planted here should claim at least a cousinly kinship with the shorter, burlier, bulkier example at Dropmore! In 1834, the record goes on to say, that some of these trees (the subjects of the illustration) were transplanted to their present site. One of our trees displays the rather indefinite attributes ascribed to a so-called variety Pallasiana. That is to say, it shows the rather stout branches curling out from the stem in candelabra fashion, and then arising in erect form and parallel with the main stem. Whether a rather vague habit, affected by many other representatives of the arboreal kingdom, gives such a specimen the right to assume the dignity of a special courtesy title, is a question, that would be a profitless waste of time for any one so unauthoritative, as I, to enter upon.

Before bringing these few observations to a close, I should like, humbly, to call the attention of would-be planters of this tree to two points derived from personal experience. It was some twenty-five years ago (and I told this story in *Characteristics of Conifers*) that here I planted one, when rabbits roamed as thick as Milton's "Autumnal leaves that strow the brooks in Vallombrosa," and where rabbits passed and repassed in quest of morning and evening meal and drink. The rabbits to-day have not (alas !) quite, but nearly (thank Heaven !) disappeared from the scene of their once—I shame to say—rather encouraged activities, but the tree remains, a respectably grown and monumental evidence of the bitter distaste in which it is held by a race of epicurean rabbits.

The second point that I should like to urge is, plant the Corsican Pine late in the spring. Those who have made experiments strongly advise spring planting ; without daring to dogmatise, I would suggest early May as a suitable date. If the long tap-roots make difficulties in transplanting, they are of great avail in the day of storm and tempest, as the wreckage proved when taking account of the results of the gales in December and January of 1915-1916.

The Corsican Pine has very many close relations, besides its Austrian congener (P. nigricans) *inter alia*, P. sylvestris, P. leucodermis, P. Thunbergii, P. densiflora and P. resinosa, but P. Laricio holds his own and his head high amongst them all. *Chas. Coltman Rogers, Stanage Park, Radnorshire.*

PROMISE AND PERFORMANCE.

WHEN the plants we have seen during the year at shows, in gardens and in catalogues become our own we are generally pleased, but there are occasional disappointments.

Bulbs, on the whole, arrive satisfactorily, but the sizes should be stated by the bulb merchant where possible, *e.g.*, Lilium auratum platyphyllum, 8–9, 9–11, 11–13, or 13–15, inches in circumference—with prices for each measurement.

Packing is very important when bulbs are dispatched, especially where brittle shoots are to be considered, *e.g.*, Erythronium, Eremurus and Juno Iris. Sawdust, commonly used, should be avoided as it retains damp. Wood shavings are excellent. Infusorial earth (Fuller's earth) is quite reliable but expensive ; husks and chaff are good but are liable to carry seeds which germinate when the bulbs are planted. There are worse things than paper. Damp moss naturally encourages bulbs to grow in transit and should, therefore, not be used as packing material.

Bulbs, especially English-grown, are usually free from disease, but diseases abound in continental supplies, notably in Freesia and Amaryllidae.

Irises are very commonly divided too severely, and the little plants received are unlikely to flower until the third year. Further, Irises often do not reach the purchaser until November or December, which is really too late for planting.

All good firms now grow Michaelmas Daisies and Phloxes from cuttings, which is a better practice than dividing whole clumps. Kniphofias seem scarce and in demand, judging from the small growths that are sent out.

Shrubs demand more detailed consideration. In the first place the catalogue should give the approximate height of the plant offered at a given price. *e.g.*,

Salix vitellina (alba) pendula	Good heads, 6 to 10 ft.
	„ „ 10 to 13 ft.
	Extra strong specimen trees 13 to 16 ft.

Next, nomenclature should be carefully checked, the *Kew Handlist* being a good guide so far as it goes. Plants should not be called "var. superba," "var. gloriosa," "var. hirsuta" or, again, "var. Lawrencei," or "var. Burfordiensis," until the distinctive characters of the plant, and the name, have been recognised by a competent authority.

In the descriptions, particulars of transplanting and of root-pruning — a practice much neglected—should be given. It should also be stated whether a shrub is a seedling—when the probability of trueness to type or otherwise should be indicated—a layer, a cutting, grafted or budded. In the last two cases the stock should be given, *e.g.*,

Daphne Genkwa grafted on D. Mezereum	12 in.
On own roots	30 in.
Magnolia Watsonii, grafted low down on Magnolia hypoleuca,	4 ft.

In the case of Roses it is more important to the purchaser to know the stock than to learn that the plants are, say, Manx-grown.

No self-respecting firm should send out old or infested plants ; if they have no young stock it is open to them to say so, and if the purchaser is willing to risk a veteran, that is his concern.

In the case of uncommon plants, cultural directions are useful, *e.g.*,

Olearia insignis : will stand zero frost but must be kept dry, with good circulation of air ; light soil.

Packing, in the case of shrubs, is becoming a fine art, and all branches should be tied to the main stem or to a stake, the roots being tightly tied into a mat containing moist straw or Bracken. The rough handling of "passenger train" parcels at a London terminus will suggest the need for adequately protecting plants that have to travel far.

Finally, it would be of great assistance to the purchaser to have all this information typed on to a pro forma invoice to be sent in duplicate a week before the probable arrival of the plants.

Many of the points enumerated above are counsels of perfection, but they are points that have suggested themselves to us at Burford, while unpacking plants received in the autumn and winter of 1926. *William Lawrence.*

ECONOMIC PLANTS OF THE BAY ISLANDS (HONDURAS).

(*Continued from p.* 51.)

THERE are numbers of varieties of the Banana growing in the Bay Islands, but the only one grown for export is the so-called Jamaica, Martinique, Guadeloupe, Bluefields, or Gros Michel Banana, known locally as "French" and among the Ladinos as Patriota, or Blanco. It is the only variety which enters largely into world trade and practically the only one exported from the American tropics. The principal market is the United States, and to a much smaller extent, Canada and the countries of north-western Europe. This is a variety of Musa paradisiaca sapientum ; it produces a larger and comparatively less bulky bunch than any one of the other varieties, and is, therefore, easier to handle.

The only Banana suitable for cultivation in the temperate zone is the Chinese or dwarf Banana, (M. chinensis (syn. M. Cavendishii and M. humilis), which is little cultivated in the Bay Islands, but in the Canary Islands is largely grown for the European market. It is also found in Florida and South Louisiana, where it is known as the Horse Banana. In tropical America this variety is found in great altitudes, where other species would perish.

The White House or Horse Banana, known as Chata among the Ladinos, is a short, stout, somewhat square-shaped, thick-skinned variety which is very mealy and therefore best suited to flour making. This will prosper in low land which remains flooded during a considerable part of the year and where other varieties will not grow. The red Banana is generally found in a wild state ; it grows on a very large plant, which is very resistant and hard to kill out, but it exhausts the soil quickly. The fruit is shorter, but a little thicker than the common French Banana. The Parrot Banana is similar to the red one in size, shape, texture and flavour, but green, not becoming red but yellow, when ripe.

The small Apple Banana, or Guineo de Manzana, has a bright yellow colour and a very thin skin ; when well-matured it has a fine flavour, somewhat reminding one of Apples.

The Plantain or Polátano (Musa paradisiaca normalis) is a very near relative of the Banana ; it requires better care, is also more esteemed for food, and yields a better price. There are a number of varieties of Plantains which are not always easy to distinguish from the Banana, and it is difficult to say where one begins and the other ends. But, in general, the name Plantain is restricted to the larger, coarser varieties of Musa, which are inedible without cooking. Small quantities are shipped to the United States.

The natives know the different varieties of Bananas and Plantains by the size, shape and colour of the leaves, and some are even able to distinguish them by the underground stem or rhizome used for propagation.

MANGO AND PINEAPPLE.

The Mango (Mangifera indica), although a native of the East Indies, is one of the most common fruit trees in the Bay Islands ; it is found all over Central America, from sea-level to an altitude of 5,000 feet to 6,000 feet (1,500 m.) having first been brought to Truxillo during the latter part of the eighteenth century. It has large and spreading branches, and reaches a great size, and, on account of this, is also esteemed as a shade tree. The smooth, shiny, leathery leaves reach a length of six to eight inches (15 to 20 cm.); they are dark green in colour, except the young ones, which are purple. The tree is easily propagated by budding. If raised from seeds, the latter must not be allowed to dry too much, otherwise they will not germinate.

The delicious fruit of the Mango tree matures in the Bay Islands in May and June ; it is highly appreciated by the average foreigner, but, unfortunately, it does not keep long, and is, therefore, unsuitable for export. The Mango season lasts only four to five weeks, as all the trees have their fruits maturing at the same time. The Mango is slightly Pear or kidney-shaped, with a yellowish-green colour and generally red cheeks. The thick, smooth rind covers a fibrous, sub-acid, very juicy pulp, which in turn surrounds a large, flattened stone. The fruit reminds one somewhat of a cling-stone Peach, especially as the flesh adheres closely to the stone. There are many varieties of which the more common have a very pronounced turpentine-like odour and flavour ; these are also smaller and the pulp consists largely of fibre and juice. The Mango is locally considered a very healthy fruit, and said to contain blood-purifying properties.

The Pineapple or Piña (Ananas sativus, syn. Ananassa sativa) is the fruit of a small Bromeliaceous plant with dark green leaves and of tropical American origin. During the latter part of the sixteenth century Portuguese and Spanish navigators introduced it into Asia and Africa, and many travellers have erroneously ascribed its origin to the Old World. The plant is found growing wild in parts of South and Central America, where it produces a spiny fruit of the size of an Apple. The presence of the Pineapple in America was noticed by the early Spanish and Portuguese chroniclers, and the Indians have practically everywhere native names for it.

The Pineapple is considered an excellent digestant if taken after a meal. There are many varieties varying in colour from yellow to red. It is a compound fruit, being produced from a group of flowers and not from a single one. The Pineapple is entirely seedless, or has very small seeds close to the skin. From these seeds new plants may be started, but this process is very slow, and as it takes from ten to twelve years for such plants to come into bearing, so seedlings are practically only raised in order to obtain new varieties. In Africa, however, the fruits contain many black seeds from which, it is claimed, seedlings can easily be raised.

New plants may be grown by planting the crown of leaves from the top of the fruit, but practically all the Pineapples of commerce are produced from the suckers which spring up from the root-stock. In about one year from the planting of the sucker a bunch of purple flowers will make its appearance, which will develop into one fruit; the latter will be full-grown within six months. One year afterwards, the second crop, consisting of two Pineapples, will be matured. In another year the plant will have three branches, each one of which bears a fruit, but as the fruits diminish in size from the first crop onwards, three years is the productive limit.

Formerly, Pineapples used to be shipped from the Bay Islands and from Utilla in particular to the United States, but nowadays the inhabitants find it more profitable to cultivate Coconuts and Bananas for export. When destined for shipment, the fruit is cut before complete maturity is reached, and the crown of leaves on the top is left attached. The leaves of the Pineapple plant, which are armed with strong, sharp prickles, contain a very tough fibre, but this is not made use of.

BREAD FRUIT AND PAPAW.

The Bread Fruit or Mazapán (Artocarpus incisa, syn. communis), is much cultivated in the Bay Islands on account of its large, edible fruits. The tree is a native of the south Sea Islands, and in 1793 was brought to Jamaica from Otaheite, together with a number of other fruits, by Captain Bligh, in H.M.S. Providence. In 1796, it was introduced into Trujillo, and by Royal Order was subsequently taken to other parts of Central America. It is now common on both coasts, from sea-level to an altitude of about 2,500 feet (750 m.)

The tree reaches a height of seventy-five feet (25 m.), and on account of the dense foliage, which is not all shed at the same time, it is esteemed as a shade tree. The smooth, bright, green leaves are divided into pointed lobes which reach sometimes up to eighteen inches (45 cm. in length.)

The Bread Fruit tree bears two kinds of flowers on the same twig, the one with a small round head producing the fruit. In the Bay Islands two crops are obtained annually, the first one in March or April, and the second one during the months of August, September and October. The fruits grow singly or in clusters of three to four, and they are attached to the twig by a very thick stem. Like the Pineapple, it is a multiple fruit, and the rough surface is marked off in little polygons corresponding to the individual fruits. The Bread Fruit has the shape of a large Aubergine; its thin skin is of an emerald-green colour. After being taken from the tree it has to be consumed immediately for it will keep only a few days. It is prepared in many different ways: boiled in water it tastes somewhat insipid, and it is generally fried, roasted or baked. When prepared by the last-named method it reminds one of bread, hence the name. It also suggests the Sweet Potato and the roasted Chestnut, and on this account probably it is called Castaña (Chestnut) in the Spanish-speaking West Indies. This may, however, also be due to the fact that its seeds resemble Chestnuts in size, shape and colour for in the West Indies the variety with seeds is generally found, while in Central America the Bread Fruit is entirely seedless.

The East Indian variety of Bread Fruit, which is better known as Jack Fruit (A. integrifolia), has entire leaves and a much larger fruit of inferior quality; this was also brought to Trujillo in 1796, but is not met with in the Bay Islands. It is easier to propagate than A. communis, and may be raised from seeds.

The Papaw or Papaya (Carica Papaya) is a small tree, fifteen feet to twenty-five feet (3 to 5 m.) in height, of tropical American origin. The straight stem, which is entirely branchless, is surmounted by a crown of long, petiolate, palmate, seven-lobed leaves, immediately below which grows numerous Melon-like fruits. The latter are green in colour but become yellow when ripe. In the Bay Islands this tree is found only in a cultivated state, but on the Central American mainland are found several species of wild Papaw trees, which bear very small, globular fruits of inferior quality.

The tree is propagated from seeds and grows very rapidly; within three years from planting it will bear fruit. The male flowers are white and the female yellow, but only very seldom are both kinds found on the same tree. Fruits are borne all the year round.

The Papaw is oblong or round; it has a thick rind and pulpy flesh. In the centre there is a hollow enclosing hundreds of round, black seeds of the size of Black Pepper. In taste the fruit suggests a Cantaloupe Melon.

CASHEW AND AVOCADA PEAR.

The Cashew or Marañon (Anacardium occidentale) is the fruit of a low tree with spreading branches and oval leaves, which is indigenous to tropical America, but now found in many other parts of the world. In the Bay Islands it is cultivated and also found growing wild. Several varieties are found which differ considerably in the size and quality of the fruit. The milky juice of the bark is locally used for marking linen. From the fruit a refreshing drink is made which may be left to ferment and is then known as Cashew wine (vino de Marañon). *Edouard Conzemius, 33, Boulevard des Batignolles, Paris.*

(To be continued).

MESEMBRYANTHEMUM.

(Continued from page 53.)

Conophytum praeparvum, N. E. Br. (Fig. 38)—Growths as received very small, crowded, 2-3 lines long and 1-2 lines in diameter, shortly obconic or obovoid, elliptic or circular in outline and convex without any trace of a ridge across it at the top; orifice ⅓-½ line long, level with the surface and neither depressed nor gaping; surface glabrous, light green, sprinkled over the top with a few scattered dark green or purple dots that are mostly separate, but occasionaly are connected into short lines and are remarkably prominent, resembling little bumps on the surface when viewed sideways with a lens, 2-3 of them are grouped at each end of the orifice, which also has a very slender dark green line on each side of it. Flowers not seen.

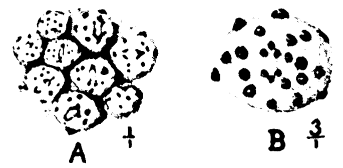


FIG. 38.—CONOPHYTUM PRAEPARVUM.
A. Cluster of growths, natural size as received; B. A single growth enlarged three diameters.

Little Namaqualand: On the Langebergen near Garies, growing among or mixed with lichens on granite, Marloth 12887!

This is one of the smallest species of this genus known to me and is one of the smallest of flowering plants. I am indebted to Dr. R. Marloth for living specimens of it, from which the above description was made. Its small size and the very prominent bump-like dots upon it readily distinguish it from all other known species. As a lichen was growing mingled with the plants sent, it is evidently one of the species that grow among lichens, a habitat shared by other members of this genus.

C. retusum, N. E. Br.—Growths ½-1 inch high, 3-9 lines broad across the top and 2-4 lines thick on their first development after importation, normally compressed and wedge-shaped, shortly two-lobed at the top, and when fully developed about twice as broad across the lobes as at the base; in this form the lobes are 1-2 lines long and in side view are somewhat truncate with a slight notch (retuse) at their top, bluntly keeled; in another form produced on the same plant the growths are somewhat obovoid and not at all wedge-shaped, and the top of the lobes in side view are rounded and not at all divergent or truncate; orifice 1½-2½ lines long; surface smooth glabrous, light green with a darker patch at the base of the notch and some rather indistinct separate dots scattered over the surface, more evident on some growths than on others, while the lips of the orifice are somewhat indistinctly outlined with a dark green line or chain of dots. Flowers not seen. Capsule 2 lines in diameter, slightly 5-angled, shortly and broadly obconic, slightly convex on the top, with 5 valves and cells, brown; when expanded 3½-4 lines in diameter, with recurved brownish valves; expanding-keels contiguous and forming a stout, acute, brown, central keel with broad, membranous, pallid, marginal wings; cells open, no tubercle. Seed about ½ line long, ovoid, but much compressed, with a very prominent nipple at one end, smooth, brown, the nipple darker.

Little Namaqualand: On rocks, in the gorge of the Kawarass River, in the Richtersveld, Marloth, 6925!

This plant I also owe to the kindness of Dr. Marloth. It belongs to the same group as C. Elishae and C. bilobum, but differs from all other species that I have seen in its very distinctly and broadly wedge-shaped growths, with the top of their lobes slightly notched or truncate. Whether it will retain this unique character under cultivation remains to be seen, as I notice that some of the new growths are quite different in form, being obovoid with short, rounded lobes on each side of the notch.

C. tantillum, N. E. Br., in *The Gardeners' Chronicle*, 1926, vol. LXXIX, p. 12. This distinct species having now flowered with me, the following corrected description of the flower may be added: Calyx 4-lobed, tube only partly exserted, 3 lines long, whitish or pale greenish; lobes ½-¾ line long, greenish, but probably reddish in full sunshine. Corolla 6-7 lines in diameter, expanding in daytime in dull or sunshiny weather, not scented; tube 5-6 lines long and 1-2 lines longer than the entire calyx, nearly 1 line thick, whitish; petals about 20, recurved-spreading, in 1-2 series, 3-3½ lines long and ½-⅔ lines broad, linear, obtusely rounded or faintly notched at the apex, bright magenta. Staminodes none. Stamens 25 or more, in about 4 series, the two upper series exserted from the mouth of the corolla-tube; filaments and anthers yellow. Style 6 lines long and nearly as long as the longest stamens; stigmas 4, minute, ½ line long, yellow.

Little Namaqualand; near Steinkopf, Meyer. (Marloth 6512)!

This is quite a pretty plant when nicely in flower, although it cannot vie with the beautiful C. minusculum, which has much larger and much more richly-coloured flowers.

3. LITHOPS, N. E. BR.

The following species are additional to those already described in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 55, and 1926, vol. LXXIX, p. 80.

Lithops Fulleri, N. E. Br.—Growths about an inch high, 12-14 lines broad and 8-10 lines thick, obconic, elliptic in outline at the flat top which has a fissure 5-6 lines deep across it, dividing it into two contiguous lobes; surface glabrous, smooth on the sides and margin of the top, which is rough from being covered with small bumps caused by numerous impressed dendritic markings, light dove-grey with a slight violaceous tint on the sides and margin of the top, and the dendritic markings of a bright rust-brown colour, making a very pleasing contrast. Flowers not seen.

Kenhart Division: Near Kenhart, Fuller!

This very distinct species was very kindly sent to me by Professor R. H. Compton, Director of Kirstenbosch Botanic Garden, with the information that it was discovered near Kenhart by Mr. E. R. Fuller, to whom I have much pleasure in dedicating this very pretty species, which is, perhaps, more nearly allied to L. karasmontana, N. E. Br., than any other known to me, but is readily distinguished from that species by its more crowded dendritic markings, rougher top and different colouration, and probably when flowers of it are known they also will differ, for in my opinion it is certainly not a mere variety of that plant. *N. E. Brown.*

(To be continued).

MARKET FRUIT GARDEN.

The wettest November in my experience was followed by the driest December, the respective rainfalls of the two months, 8·16 inches and 0·79 inches, making a striking contrast. The total rainfall for the year at my place was 33·25 inches.. The average for the previous twenty-five years was 29·97 inches, and 1926 was the fourth year in succession with over average precipitation. To this may probably be attributed, in large measure, the difficulties and disappointments which most fruit-growers have experienced during that time. The industry has passed through a period of depression; but there is, fortunately, some reason to hope that the lowest point was reached in 1926, when industrial unrest intensified the financial effect of very low yields of the most important crops. Although it was a wet year, it was distinctly drier than any of the three preceding it; and the weather of the summer months, which has such an important bearing on prospects for the next crop, was undoubtedly more seasonable. It is not unreasonable to hope, therefore, that 1927 may prove to be more prosperous. Most growers, having disposed of their light crops at an unusually early date, wisely set themselves to push forward with winter work, with the result that many plantations will be in extra good order for the coming season.

Winter Spraying.

It is very seldom that December affords such excellent conditions for winter spraying. Not only was the weather dry but also, on many days, perfectly still. All my Plums, except for a few young trees, were sprayed with tar-distillate wash, and several acres of Apples were done as well. There is not much doubt that every tree on the place will receive its application before the middle of February. One advantage of getting this work done early is that, in the absence of strong sunlight, the wash does not burn the skin to any serious extent. In previous years several of my men have had their faces painfully scorched, but always on unusually warm and sunny days. Various forms of masks and veils which I have tried have always been discarded because it is difficult to see through them. The best protection is afforded by smearing the face with lanoline—not the thin, scented preparation sold in tubes for toilet purposes, but the plain grease, which is much thicker. This may be obtained from most chemists, as it is supplied largely to men engaged in the work of tarring roads. Another advantage of early spraying is that earthworms are not killed. In my last notes I mentioned that tar-distillate washes destroy thousands of worms, and it has been my experience previously that the ground is covered with dead worms after the spraying. This year I have not seen any. I can only conclude that the worms are too deep down in the soil during mid-winter for the wash to reach them.

Culinary versus Dessert Apples.

About sixty per cent. of the area under Apples on my place is devoted to dessert varieties, which is an unusually high proportion for a fruit farm in this country. I used to be of opinion that the planting of Bramley's Seedling and other late cooking varieties was being overdone, but I am inclined to alter that opinion. Dessert Apples seem more attractive on account of the higher prices they realise when a good sample is produced. But price is not everything. A good crop of high quality is not grown by any means every year; and considerable labour and expense are incurred in pruning and spraying. Some of the robust cooking varieties are more reliable, less seriously attacked by pests and diseases, and altogether less expensive to grow. If the price is lower, yields are heavier and more regular. The idea of a large plantation of standard or half-standard Bramley's Seedling, with a few Newton Wonder and Annie Elizabeth to act as pollinators, is distinctly attractive. Bramley's Seedling needs little pruning or spraying, and it may be relied on to yield a heavy crop in alternate years. For the first ten years after planting bush fruits could be grown between the trees, and after that the plantation could be grassed down and the herbage grazed with sheep or pigs. Expenses would thus be low. Any one who cares to work out the probable return on the conservative basis of a moderate crop in alternate years only, will find that quite a fair living could be made from a good-sized plantation of this kind. In the "off" years the grower could almost go away for a holiday! Yet the attraction and interest of dessert Apples are so great that I do not practice what I preach. Even this winter I have run the risk of adding another locally-untried variety to my list of dessert kinds, having grubbed a belt of the almost worthless Duchess of Oldenburgh and replaced it by Langley Pippin.

Winter Stage of Apple Scab.

Whilst pruning recently I have found more than the usual amount of scab on the young shoots of several varieties of Apples, especially Cox's Orange Pippin. In some cases almost the whole of the young wood has had to be sacrificed for this reason. It was noticeable last summer that the disease was active and spreading unusually late, and this is no doubt the result. Late spraying to protect the young shoots would probably have paid, but one feels disinclined to go to the expense of extra spraying in the case of trees that are bare of fruit. Scab has grown gradually worse during four wet seasons, and a dry summer is badly needed to give it a check. Cutting off and burning affected wood removes one source of infection, but there still remain the dead leaves under the trees. Obviously, preventive spraying with Bordeaux mixture or lime-sulphur just before and after blooming will be very necessary this year.

The Dormant Season.

We talk about fruit trees being dormant during the winter, but it seems to me that they are never quite inactive. The fruit buds of Apples have certainly developed since the leaves fell. They look rounder and plumper than they did at the end of November. Decided movement can be seen also in the buds of Black Currants. Nor does root development appear to be quite at a standstill. I have often found that, if bush fruits, particularly Gooseberries, are laid in to await planting, and left till January or February, they have made quite a lot of fibrous root by the time they are lifted. Probably vegetation is at a complete standstill only during cold periods, and a certain amount of movement takes place during mild spells. *Market Grower.*

FRUIT REGISTER.

APPLE RIVAL.

As a dual-purpose Apple, I strongly recommend the variety Rival. The tree is a good, strong grower, crops regularly and well, and the fruits are very good, either for dessert or cooking. The variety has also the good quality of being in season for a long time, in fact, here in north Hampshire I consider it, taken all round, one of the most useful and reliable Apples grown. *T. B.*

PLUM DIAMOND.

There are two accounts of the origin of this excellent culinary Plum (Fig. 39). Bunyard in *A Handbook of Fruits,* states that it was found by a farm labourer in a hedge in Kent, and that a nurseryman named Hooker of Brenchley introduced it to commerce in 1830; Dr. Hogg, however, in *The Fruit Manual,* states that it was raised in Mr. Hooker's nursery. Whatever the origin, the quality of the variety has never been called in question; Hogg states that it is one of the best Plums for preserving or cooking. The variety is very popular with some private gardeners, and at one time it was cultivated extensively for market, but it is not so much grown now owing to the blossom developing so early as to be often injured by frost. The tree makes good growth and may be relied on to fruit freely when the spring is favourable to the flowers setting. The fruits are very large; they are dark purple, almost black, with a pretty bloom, and of the oval shape shown in the illustration.

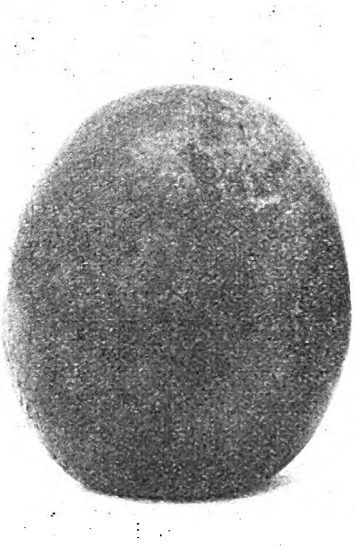


FIG. 39.—PLUM DIAMOND.

The variety was exhibited by Mr. J. C. Allgrove at the meeting of the Royal Horticultural Society on September 7, 1926, when the specimens illustrated were photographed.

APPLE REV. W. WILKS.

This is a culinary Apple of first-rate quality, and one which should not be overlooked by those who are making up deficiencies or planting new orchards. It is one of the largest varieties in cultivation, and the growth is vigorous, making an evenly-balanced tree.

A standard specimen planted here in 1921 carried a full crop during the past season, and many fruits weighed over a pound each.

It is in season from October to December. Though somewhat colourless, the ribbed fruits are attractive in appearance. It is one of the finest of culinary Apples when cooked. *Charles Hodgson.*

EMULSIFIED OILS FOR THE DESTRUCTION OF INSECT EGGS.

(*Concluded from p.* 54.)

The following comparisons of various types of tar and creosote may be of interest as they illustrate the wide variance in composition which must of necessity greatly influence the value and action of any emulsion prepared therefrom.

Gas-Work Tar from Durham Coal.	Per cent.	Ruhr Coal (Vertical Retorts). Per cent.
Ammoniacal liquor	3·9	1·5
Naphtha } light oils	1·63	3·6
Carbolic oil	11·87	15·5
Creosote oils	4·37	11·6
Anthracene oil	21·87	30·0
Pitch	53·65	37·0
Loss on distillation	2·71	·8

Coke over Tar.	A. Per cent.	B. Per cent.
Water	4·5	4·0
Naphtha	·5	·25
Light oils	1·0	1·75
Creosote oils	17·4	18·0
Heavy or Anthracene	18·6	10·0
Pitch	58·0	66·0

Water Gas Tar.	Per cent.	Per cent.
Light oils	1·99	3·68
Middle oils (creosote)	14·87	28·27
Anthracene oils	57·28	39·66
Pitch or residue	24.72	24.10
Loss	2.04	4.29

Creosotes specification from various sources.

	Belgian.	Roumanian	French	German	English.
Specific Gravity	1·05	1·05–1·10	1·015	1·02–1·05	1·03
%Tar acids not less than	6·0%	6–10%	6%	10%	6%
% Oil distilling 200° to 250°C.	33%	33%	—	20–25%	60%
% Oil distilling 250° to 300°C.	66%	—	—	—	90%
% Oil distilling 300° to 400° C.	—	1%	—	—	—
% Naphthalene	—	10–30%	—	—	10·30

DISTILLATION TESTS.

Comparison of creosote and anthracene oils.

	Creosote Oil.	Anthracene or Green Oil.
Up to 200°C.	10–15	5
Up to 220°C.	50	10
Up to 250°C.	75	15
Up to 300°C.	90–95	40
Up to 320°C.	—	50–60
Specific gravity	1·02	1·05–1·10
%Phenols	15–20%	—

Anthracene oil is even of a more complex composition than creosote. In view of the complexity it is extremely difficult to identify egg-destroying characteristics with any particular constituent. This makes it equally difficult to standardise washes made from this material. The only rational way of doing so is to always maintain the same source of supply and keep a very careful chemical control of the particular fraction to be used.

Anthracene oil is not a very difficult oil to emulsify, provided the anthracene is removed so far as possible either by freezing or washing. This can be accomplished by various methods, but one of the great secrets is to produce an emulsion which, on dilution with water at the standard prescribed strength, has such a viscosity and surface tension that a lethal amount of oil emulsion is retained by the exposed surface of the insect egg owing to its natural resistance.

If these two physical factors are varied, as for example, lowered, and this is possible by altering the state of the emulsion so as to form a colloidal suspension or solution, an insufficient quantity of the oil is retained, and consequently the percentage of egg destruction is considerably reduced.

In order to secure the best results with a tar-oil wash it is desirable to have a spell of fine weather following its application to the trees, so as to obtain a thorough drying out of the film, which in the presence of atmospheric CO_2 causes a de-emulsification of the oil.

It has been observed that trees sprayed with the standard concentration of any of the recognised brands of tar-oil emulsion subsequently bear a much more luxuriant growth of foliage and generally present a more healthy appearance. This is probably due to the partial sterilising effect of the excess of wash that is bound to penetrate the soil from drippings, etc. The effect upon the cleanliness and extent of the crop is also very remarkable. The difference between an unsprayed and sprayed portion of an orchard is so pronounced as to be absolutely astounding.

The table below forms a guide for the treatment of the most common parasites and fungous diseases by means of spraying with tar-oil wash (standard). *Theodore Parker.*

CROP.	PEST.	TO MAKE 100 GALL. MIXTURE USE	TIME OF TREATMENT	PARTICULARS.
Apple and Pear	Scales, green Aphis, Red Spider, Apple Sucker, Rosy Aphis	7½ galls.	Winter and early spring	Cankerwounds can be dressed with 25%–100% strength, depending on the age of the twigs and stems.
	Woolly Aphis, Winter moth, Canker, Monilia	10 galls.	Winter and early spring	In summer time apply the tar-oil wash to the nests of Woolly Aphis by means of a brush.
Plum, Cherry, Morello	Aphis and Monilia	6 galls.	November to December	Never spray during frost, nor in glasshouses. Spray only when the trees are in dormant stage.
Peach	Peach and Cushion Scale, Aphis and Red Spider	5 galls.	Outdoors in the beginning of February. In glasshouses last week of December, first week of January	Loosen the wall trees. Spray and do not brush the twigs and stems with tar-oil wash for this may cause damage to the buds.
Vine	Vine Scale and Red Spider	7½ galls.	Winter	The loose, corky scales should be removed from the stems; do not brush them with tar-oil wash, but spray.
Gooseberry	Magpie moth, Aphis, Red Spider, Winter moth	7½ galls.	Winter	In some seasons the buds begin to open very early in spring, and although Gooseberry bushes in that stage can withstand a spraying with 7½% tar-oil wash fairly well, it is preferable to spray the bushes when they are still in the dormant stage.
Red Currant	Magpie moth, Aphis, Scales, Fruit borer	8 galls.	Winter	Do not spray later than in the first week of February, spray particularly the stems, not forgetting the under part of same.
Raspberry	Raspberry moth	8 galls.	Beginning of February	The fluid must also run along the stems into the ground, as just under the surface most of the young caterpillars are to be found spun in cocoons.

VEGETABLE GARDEN.

LETTUCE.

Where Lettuces are required all the year round it is advisable to make an early sowing in January. The compost for the seed-boxes or seed-pans should consist of equal proportions of good loam and leaf-mould mixed with a liberal quantity of sand. Shallow boxes are preferable to seed-pans, for the soil in the latter dries out much quicker, whilst boxes retain moisture much longer. The soil should be made fairly firm and even before sowing the seeds, which should be covered very lightly with some of the compost. Place the box on a gentle hot-bed that has been prepared for forcing early Melons or Cucumbers, or, failing that, place them on a shelf in a fairly warm house. Keep the boxes covered with a sheet of glass and in sunny days shade the soil with a piece of paper. So soon as the seeds germinate, tilt the glass, and when the seedlings have grown strongly, remove the glass entirely. Prick out the seedlings into other boxes so soon as they are large enough to handle with safety, about an inch apart, using compost with less leaf-mould, substituting in its place manure from an old Mushroom-bed after it has been passed through a half-inch sieve.

The plants may be returned to a warm house or grown over a gentle hot-bed for a week or ten days until they are re-established. On bright days the young plants may be damped lightly overhead. Harden them gradually in a slightly lower temperature, and so soon as they are large enough transfer them to pits or frames that have been filled previously with freshly-collected leaves; the latter will provide gentle warmth, which is all that is needed. The soil for placing on the bed of leaves should be fairly rich; if good loam is unobtainable, use old potting soils, adding a liberal quantity of fresh bone-manure to it. The soil should be placed in position a week or so before planting, and to a depth of about six inches.

Plant the Lettuces about eight inches apart each way and keep the frame closed for a few days and shaded in sunny weather. When the plants are growing freely they should be syringed on bright days and the frame closed early in the afternoons, for Lettuces, at this time of the year, do not require much ventilation. The pits or frames should be protected at night against frost and cold winds.

Successional sowings should be made to maintain a full supply, and these later plants treated much in the same way as the first batch until the weather is favourable for planting them out-of-doors on a warm border. Golden Queen Cabbage Lettuce is a good variety for early cropping. All-the-Year-Round is a valuable sort for the first planting out-of-doors, also for sowing in the open in April. Superb White is a first-rate Cos Lettuce, and where small Cos Lettuces are required, Sutton's Nonesuch may be selected for growing as it forms a small, white head in less time than any of the ordinary Cos varieties. Successional sowings should be made to furnish supplies in summer.

Lettuces should be provided with plenty of moisture to cause them to grow quickly, especially during the summer.

For autumn and early winter supplies, plants raised from seeds sown out-of-doors in August should be transferred to cold frames late in the season, about eight inches apart, whilst the very latest sowings may be made direct in the frames. *E. Neal, Tilgate Gardens, Crawley.*

SWEET CORN.

The cultivation of the Maize (Zea Mays) does not present any great difficulty, and as a vegetable it commands considerable appreciation. Seeds should be sown in warmth during April, the seedlings potted, grown on under glass, and hardened sufficiently for planting by the last week in May or the first week in June; an alternative method is to sow seeds in the open in late April or early May.

The plant needs a deeply-cultivated and rich soil, a position where it may reap the full benefit of the sun's rays, and, during dry weather, copious supplies of water. Allow the plants ample room; a distance of two feet between the rows and the same from plant to plant is not too much. Each plant should be staked securely. Stimulants are of great assistance to the plants during the later stages of growth. Excellent varieties are First of All, Sutton's Early and Improved Sweet; well-known American varieties are Golden Bantam, Fordhook and Golden Giant, while of those favoured in South Africa, Country Gentleman and Burlington give fine cobs, more particularly the former.

The history of the Maize is lost in antiquity; the generic name, Zea, was the Greek name for Spelt, or a similar cereal, and is referred to by Homer; it possibly ranks second to Rice as a food plant, and is very largely grown in warm countries. In the South of England suitable varieties may be relied upon to produce plenty of good cobs, and these are invariably esteemed wherever good vegetables receive due appreciation. *Ralph E. Arnold.*

HORSERADISH.

THIS much relished appetiser to our national dish—roast beef—is, curiously enough, not grown to any great extent in this country, and the needs of the market are largely dependent on imported roots. It is an excellent stimulant to the digestive organs, and owing to its diaphoretic and diuretic properties has other values in medicine. It is generally found in private gardens, but frequently under any but good conditions of culture, the roots simply remaining in the ground for an indefinite period, with the result that supplies consist of hard, stringy pieces difficult to grate, instead of young, succulent roots, full of natural juices yet less pungent in flavour.

It is a mistake to relegate this crop to an out-of-the-way corner as it needs an open situation and repays for good treatment. The plant grows especially well in light, rich, well-worked soil, and if the site is prepared thoroughly, thongs which are planted in the spring will yield roots of usable size the following autumn. In many cases, the plantation should be partially renewed every year, and if larger roots are wanted, a part may be left undisturbed the second year, after which the old plants should be discarded.

New beds may be planted in February, or so soon as the soil is in good condition. Choose clean, straight pieces of the root of about finger size or a little less, and cut them into sets about a foot long. These should be planted in rows in a slanting position, covering them to a depth of two inches. The sets may be planted at a foot apart in the row, but at least thirty inches should be allowed between the rows. The ground should be kept free from weeds at all times; in dry weather it is essential to keep a loose surface to check evaporation of soil moisture, as the plant soon suffers from lack of water at the roots. *W. Auton.*

CULTURAL MEMORANDA.

DEEP TRENCHING.

FEW gardeners will, I think, question the wisdom of deep trenching for improving the soil and enhancing the appearance, quantity and quality of most vegetable crops.

Trenching is laborious work which, owing to a reduced staff in most gardens and the many necessary duties to be carried out, few are in a position to undertake.

The illustrations reproduced in Figs. 216, 217 in *The Gardeners' Chronicle*, December 18, 1926, in support of Mr. Beckett's remarks on deep trenching are very striking, to my mind a little too striking, as the plants in the untrenched ground look very thin in the rows and, if I mistake not, there appears to be some blanks amongst them which could not well be attributed to the want of trenching. The difference in size of the plants, however, compared with those in the trenched ground is very convincing, and entirely in favour of the latter operation.

I question, however, whether Mr. Beckett, who is a past master in the art of vegetable growing is quite right in his teaching when he advocates the bringing of the subsoil to the surface no matter what it is like. This may be correct in the case of London clay which his soil is mainly composed of, but there are various types of subsoil throughout the country. The kind I have to deal with is of a tenacious nature and of reddish colour, which comes, in places, to within one foot of the surface. Could such a subsoil be turned over to a depth of three feet and brought to the surface without detriment to future crops? I doubt it, except through a long process of trenching and retrenching, gradually deepening the trench each time to allow of the action of air, water and soil life on the broken subsoil.

It would be interesting to have the views of some of your experienced readers on this subject. *G. D.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Autumn Tints.—I was much interested in the article by *A. P. C.* (p. 332, vol. LXXX), on Autumn tints, and also in your article on The October Garden, in your issue of November 13. The colouring of foliage in these gardens was unusual this autumn. Acers, to which we usually look for some of our best effects, were very disappointing: these include A. Ginnala, a number of forms of the Japanese Maple, Sycamores, and several forms of the Norway Maple. All of these were cut by the early frosts, the foliage turning a dull brown and persisting on the trees. Azalea foliage was late in colouring, but was a gorgeous sight ultimately. Amelanchiers were unusually good, but most of the Cherries were very disappointing. Rhus Cotinus, R. cotinoides, and R. typhina all failed to colour, the leaves being cut by frost. Oaks were exceptionally good in colouring, but the leaves came down very quickly, especially those of the Scarlet Oaks. Beeches, which with us usually carry their foliage through the greater part of the winter, were practically bare in late autumn, while the various species fo Hamamelis were a total failure for colour. At the end of November trees of Liquidambar were still carrying foliage of a most glorious colour. Of berry-bearing plants, the only really effective one this season was the Pernettya, which was literally laden with fruits, and as these usually persist till March, I consider the Pernettya the best of all berried shrubs. *Evan G. Jones, Shalesbrook Gardens, Forest Row, Sussex.*

Lathyrus tuberosus.—According to Nicholson, this plant is found in Europe, West Asia, and North Africa, also that it is naturalised in Essex, while Bentham, in the *British Flora*, states that it is only found in this country around Fyfield in Essex, where it is abundant. In view of these statements, it is interesting to record that L. tuberosus was discovered last summer growing wild in a field adjoining Sedbury Park, Chepstow, the residence of H. Talbot, Esq. The plant was first noticed in a bunch of wild flowers at our local Tidenham Flower Show on August Bank Holiday, by Dr. Schoolbred, of Chepstow, a noted and keen botanist. Afterwards, it was only a matter of days before its habitat was found. I have heard that it is growing around Lydney, and perhaps some readers have found this charming subject in other parts of the country. It would be most interesting to learn if it has been found in other counties in addition to Essex, and this part of Gloucestershire. As the specific name suggests, it is tuberous-rooted, the perennial rootstock forming a few small tubers which are dormant during the winter months. The annual, tetragonal stems are weak, and if something to support them is present the plant will grow two or more feet in height, otherwise it will creep about after the manner of the Pea family in general. The flowers are neither so large nor so numerous in the spike as in the Everlasting Pea, but the colour is bright rose, or reddish, and altogether it is a delightful plant. There is no doubt it is worthy of being introduced to gardens, but until I know more about it, I would not advise placing it on the rock garden. Here it may prove too aggressive and become a veritable weed, but in other parts of the establishment it would probably keep within bounds, and be a source of joy during June, July and August. *T. W. Briscoe, Chepstow.*

Cabbage Butterflies.—Mr. Kenneth M. Smith, on the authority of other observers, dismisses (p. 412, vol. LXXX) Fabre's account of the egg-laying of Apanteles glomeratus as incorrect, and I assume, therefore, that he, as well as myself, has never observed the act of oviposition in that species. I should like to point out, however, that Fabre's account is so very circumstantial, that it is difficult to believe that he was entirely wrong. In his book on the *Life of the Caterpillar*, he states that he very wisely prefers to see things for himself than to take as correct what others have written, and accordingly he collected the yellow cocoons of the parasitic fly and put each cluster in a separate test tube. He then collected batches of the larvae of the large white butterfly (Pieris brassicae), and put a cluster in a larger phial into which he introduced a batch of the flies, which had come out of the cocoons, and the flies took no notice of the larvae; on the contrary, when he introduced the flies into a phial with batches of the eggs of the butterfly, the flies clustered on the eggs and obviously oviposited in them. He describes the flies as black with pale red legs, and states that they came out in mid-June. It is, of course, possible that amongst the Apanteles were specimens of a chalcid parasite on Apanteles, but it would not lay its eggs in the butterflies' eggs, unless the latter already contained eggs of Apanteles. Egg parasites, of which there are many, especially amongst the Proctotrupidae, usually do their work so thoroughly that the eggs do not hatch and the perfect parasites emerge from them in due course. I firmly believe that Fabre describes what he saw, and the only possible way out of the difficulty appears to be the assumption that in some way or other, not at all easy to understand, the flies that Fabre watched ovipositing in the eggs were not those of Apanteles at all, but some other parasitic fly; yet one cannot believe that he could not distinguish between them. I have no wish to question the *bona fides* of Mr. Smith or the observers he quotes, but I shall certainly endeavour next season to settle the question for myself if I can secure Apanteles cocoons and ova of the butterfly at the same time. *C. Nicholson, F.E.S.*

Apple Joy Bells.—The well-timed comments of "*T*" on this variety (see vol. LXXX, p. 476) brings to memory a very enjoyable meeting I had with Mr. Will Tayler, and his presentation to me of a specimen fruit of the Apple he raised and named Joy Bells. I met Mr. Tayler at the first Imperial Fruit Show, held at the Crystal Palace, when, after an interesting chat on Apple lore, he produced a specimen fruit of a showy Apple from his pocket, inviting me to pass an opinion on the merits of its flavour. It was delicious, the texture of the flesh being soft, juicy and extremely sugary, reminding me of a well-finished fruit of James Grieve. I at once predicted a great future for this fine dessert variety. Mr. Tayler informed me that the tree was very fertile, made healthy growth and formed an ideal bush and a noble standard. It is especially productive trained as an espalier. *Pomona.*

Biennial Cropping of Apples.—Mr. William J. Moyse, on p. 37, criticising my remarks on biennial cropping of Apples, states that both my arguments support the theory that biennial cropping is natural. I did not mean to convey anything of the kind, for to say so would be quite contrary to my experience. This discussion started on whether the bad weather early in 1926 was responsible for the poor crop, or if it was the natural "off year." It is open to any grower as well as myself to note whether frost damages fruit blossom. A casual glance is of no use; one must look closely to see if the stigmas are injured, and it does not take more than a few degrees of frost to do injury. Mr. Moyse states that thinning does not lessen the weight of the crop. I should not call it "thinning" if it did not—and why should it be called an "artificial device"? A good Peach grower thins his fruit to one to every square foot of surface, so why should an Apple tree be expected to bear three and four times as many and yet retain enough vigour to bear a crop the following year. I know the usual method of thinning Apples is to leave the best one in every cluster, but that practice leaves far too many. Mr. Moyse's table on Apple cropping from 1906 to 1924 does not prove anything. There is no mention in it of what the weather was like when the trees were in flower. I advise him and other sceptics to try the "artificial device" of drastic thinning for himself and not depend on reports from Long Ashton or East Malling to support his arguments. *Grigor Roy.*

SOCIETIES.

THE ORCHID CLUB.

At the meeting of the Orchid Club held on the 14th inst., well-flowered specimens of fine varieties of Cypripediums, Odontoglossums and Calanthes, including several interesting and promising new hybrids raised by members, were shown extensively.

Premier Diplomas.

Cypripedium Chrysostom var. Lord Lambourne—From Dr. Craven Moore. A very fine variety of the well-known hybrid raised by G. F. Moore, Esq., of Chardwar. The round, dorsal sepal, four inches across, is white with a small green luna, and neatly marked with crimson spots. The well-proportioned petals and lip are green shaded with crimson.

Cypripedium Perseus.—From Dr. Craven Moore. A particularly fine, brilliantly-coloured flower of this well-known and beautiful variety, carried on a long stem, was awarded the Premier Diploma; the variety has previously been awarded the Diploma of Merit.

Diplomas of Merit.

Cypripedium Onward (*C. King George V.* × *C. Dixon Thorpe*).—From A. T. Cussons, Esq. A medium-sized flower of almost perfect shape. The round, dorsal sepal is three inches across; it is white, with a small green luna; the ventral sepal, which is similar in shape and a little smaller, has a broad white band; the petals and lip are green shaded with brown.

Cypripedium Memoria J. H. Walker (*C. Lady Dillon* × *C. Cardinal Mercier.*)—From Dr. Craven Moore. A medium-sized flower of good shape and beautiful colour. The square, dorsal sepal, three inches across, is white heavily blotched with crimson; the petals and lip are well-displayed and of good proportion, shaded with crimson on a yellow ground which appears as a clear yellow edge.

Cypripedium Cloudeslee (*C. Monialis* × *C. Pallas Invincible*).—From F. T. Paul, Esq. A new hybrid of excellent qualities somewhat marred by an unduly large lip. The dorsal sepal, three inches across, is white, with a small, yellowish-green luna, and spotted with crimson. The petals and lip are green shaded with brown.

Cypripedium Charlesworthii var. Merledene.—From F. T. Paul, Esq. A striking form of the species, having a large, flat, beautifully rose-coloured, dorsal sepal, three inches across.

Calanthe Bessie Stewart (*C. Bella* × *C. George*).—From B. J. Beckton, Esq. A large, well-shaped flower of beautiful rose and white.

Odontoglossum crispum var. Albatross.—From Dr. Craven Moore. A hybrid crispum, having large flowers of excellent shape and great substance. The sepals and petals are pure white, the column red, and there is an occasional small red dot on the flat lip. The plant carried a full spike of fourteen open flowers and a second spike of twelve flowers and buds. A Certificate of Cultural Commendation was awarded to Mr. W. Gilden, the gardener.

Groups.

B. J. Beckton, Esq. (gr. Mr. W. A. Stewart), exhibited a highly decorative group composed of well-flowered Calanthes in great variety, including several plants of the dark crimson C. Angela, C. Butterfly, C. Bella, C. Bryan superba, C. Chapmanii and the new C. Bessie Stewart, raised at Daisy Bank. The many Cypripediums included such noteworthy varieties as C. Warrior, Green's var., C. J. M. Black, C. Princess Patricia and C. Britain's Monarch; whilst species were represented by various Masdevallias, Restrepias and Leptotes.

Dr. Craven Moore (gr. Mr. W. Gilden), staged a large and imposing group of Odontoglossums and Cypripediums. Of the former there were fine examples of the xanthotic crispums, O. illustrissimum Shrubbery var., and many blotched and white hybrid crispums of fine quality. The Cypripediums included C. Chrysostom, vars. Lord Lambourne and Conyngham; C. Gwen Hannen, vars. excellens, Chardwar and virginale; C. Perseus, C. Corsair, vars. Holford's and Westonbirt, and the new hybrid C. Memoria J. H. Walker.

Mrs. Fred Hardy exhibited Odontoglossum Mulus tentaculatum, carrying on a large, branched spike many of its sweetly scented, yellow and brown flowers. This interesting plant has been in cultivation at Tyntesfield since 1894, when it was obtained by the late Mr. Fred Hardy from his father's collection at Pickering Lodge.

Sir William Thom (gr. Mr. R. Williams), had a selection of choice and interesting Cypripediums, including the beautiful C. Athollii, C. Caractacus var. Carnival, with a rich crimson blotched dorsal sepal and petals reminiscent of C. Beryl; C. Mrs. Rickards var. cornutum, a fine C. Earl Tankerville hybrid, a good form of C. Cappa-Magna, and the delicate yellow and white C. Sanacderae var. Theresa.

A. T. Cussons, Esq. (gr. Mr. Dalgleish), also staged an interesting group of Cypripediums, Odontoglossums and Lycastes, including two forms of the new C. Onward, C. Olympus var. Diadem, and Lycaste Skinneri album.

F. T. Paul, Esq., F.R.C.S., showed a few select Cypripediums.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held at the R.H.S. Hall, on Monday, January 10, Mr. C. H. Curtis presiding.

Five new members were elected, five members withdrew interest amounting to £29 1s. 8d., and one member over the age of seventy withdrew £108 17s. 0d., while the sum of £38 5s. 11d. was passed to the nominee of a deceased member.

The Sick-pay on the Ordinary side amounted to £111 2s. 3d., and on the State Section to £117 0s. 10d.; maternity claims totalled £5.

The sum of £27 6s. 6d. was granted to State members towards dental and optical treatment.

CARDIFF AND DISTRICT GARDENERS'.

The fortnightly meeting of the above Association was held at The Queen's Hotel, Cardiff, on January 4, and was well attended. Mr. W. Jenkins, of Newport, read a paper entitled, "Opportunity." Mr. Jenkins dwelt on the many opportunities that presented themselves to gardeners, especially the younger ones, by belonging to the Association, and thereby making many new friends, winning prizes, making first speeches, and asking in public difficult questions. An interesting discussion followed Mr. Jenkins' remarks.

An interesting presentation was made to Mr. R. Mayne, one of the oldest members of the Association, of a case of amber and meerschaum pipes and a tobacco pouch, suitably inscribed. This old and esteemed member has belonged to the Association for forty years, and held the office of Secretary for sixteen years.

It was decided to hold a dinner and social evening in connection with the above Association at The Queen's Hotel, Cardiff, on Saturday, January 29th, at 7 p.m. Donald Cory, Esq., will occupy the chair.

READING AND DISTRICT GARDENERS'.

The annual general meeting of this Association was held on Monday the 10th inst. The President, Mr. Frank E. Moring, occupied the chair and there was an excellent attendance of the members. The balance sheet and annual report, as read by the Hon. Treasurer and Hon. Secretary respectively, showed that the Association had enjoyed a prosperous year and was in a most flourishing condition. The membership had increased, the financial position was exceedingly sound, and the attendances at the meetings were large. Although the season was not so favourable as could be desired, the number of exhibits of flowers, fruit and vegetables staged at the various meetings amounted to one-hundred-and-seventeen. Among the officers elected for 1927 were: President, Mr. Frank Moring; Vice-Presidents: Mr. Alderman F. B. Parfitt, J.P., Mr. Leonard Sutton, C.B.E., Mr. E. P. Foquett Sutton, M.B.E.; Chairman, Mr. J. R. Lloyd; Vice-Chairman, Mr. H. Reeves; Hon. Treasurer, Mr. A. H. Leaver; Hon. Secretary, Mr. H. G. Cox, and Hon. Assistant Secretary, Mr. E. J. Dore. The Committee was also elected.

Obituary.

Arthur Abbiss.—We regret to learn from *The Star* that Mr. Arthur Abbiss, of the firm of Messrs. Abbiss Bros., florists, Hitchin, was found drowned on January 15.

Georges Hert.—We record with regret the news, taken from the Paris *Revue Horticole*, of the death on December 13, of M. Georges Hert, a well-known horticulturist of Chesnay (Seine-et-Oise). M. Hert, who was only forty-six, had a brilliant career, first as a student at the Versailles Horticultural College, later acquiring fresh knowledge in Germany, and then becoming head of the glass department at Versailles, which he only left to found his own business at Chesnay. He leaves a widow and three children.

Rev. F. Page-Roberts.—The news of the death of this distinguished Rosarian will be learned with the deepest regret by our readers, for he was a well-known personality in the horticultural world and a warm-hearted man who had endeared himself to a wide circle of friends and acquaintances. He died on Wednesday, the 5th inst., following an attack of pneumonia. He commenced growing and showing Roses soon after he was appointed to the Rectory of Scole in Norfolk, in 1875. In the early nineties he removed to Halstead, and three years afterwards was appointed rector of Strathfieldsaye, where he had a fine Rose garden and excelled especially in the growing of Tea varieties. He was the President of the National Rose Society in 1909 and 1910. For a long number of years he was chairman of the Seedling Rose Committee of the N.R.S., and in recognition of his services to the Rose he was awarded the Dean Hole Memorial Medal in 1919. For many years the Rev. Page-Roberts was a member of the Royal Horticultural Society's Floral Committee. A portrait of the deceased gentleman appeared in our issue for February 6, 1926, accompanied by a short biography.

ANSWERS TO CORRESPONBENTS.

Names of Plants.—*A. E. F.* 1, Aloe variegata: 2, Lonicera japonica var. aureo reticulata: 3, Santolina Chamaecyparissus (Lavender Cotton); 4, Mahonia Aquifolium; 5, Cotoneaster Simonsii.—*A. M.* 1, Ilex Aquifolium (seedling form); 2, I. A. var. latispina; 3, I. A. var. donningtonensis; 4, I. A. var. angustifolia; 5, I. A. var. ferox; 6, I. A. var. crispa; 7, I. A. var. scotica; 8, I. A. var. laurifolia; 9, I. A. a. var. flavescens; 10, I. A. var. Wilsoni; 11, I. A. platyphylla. .

White Fly Fumigants and Plants.—*G. S.* (1) Cellular structure has little effect in rendering plants immune to the poisonous action of a fumigant. Whether the cells are thin- or thick-walled, they have stomata or openings in them that can admit gases to the interior. The cellulose of the walls themselves may be regarded as so much dead matter after they take permanent form. The protoplasm or contents of all young cells are the deciding factors in the case, because protoplasm is the only real live part of a plant. In Tomato leaves it may be capable of resisting any particular fumigant by reason of some unknown factor which it possesses, but in Chrysanthemum leaves it lacks that factor which would make it immune to that same fumigant. A parallel case may be found in Potatos which are immune and non-immune to wart disease. In the case of plants, the resistant ones are only discovered by experiments in the laboratory and out-of-doors. The resistant factor may be chemical or physical, or partly both. (2) If a fumigant was known, capable of killing white fly on Chrysanthemums and not the plants, it would soon be placed on the market. The white fly that is so destructive under glass is Aleyrodes vaporariorum. The outdoor one is A. proletella, which has a dusky spot on the middle of each forewing.

Communications Received.—J. F. D., Holland.—C. E. M.—B. H.—C. S., Berlin.—C. I.—E. B.—R. O. H.—W. H.—F. L. S.—C. H. H.—H. E. B.—W. C.—S. D. R.—H. H. G.—J. M.—R. W. N.—N. G. H.—W. J. M.—J. S.—W. J. C.—Burford.—D. L. B.—B. B.—W. K.

THE
Gardeners' Chronicle

No. 2092.—*SATURDAY, JANUARY* 29, 1927.

CONTENTS.

Adonis gardens in Scripture 82
Alpine garden—
  Euonymus kewensis 80
  Top-dressing alpines 80
Apples, biennial cropping of 86
Blackpool, a big flower show for 75
Bog garden 79
Books, notices of—
  Sweet Pea Annual... 76
Bulb garden—
  Syringodea pulchella 79
Florists' flowers—
  The modern single Chrysanthemum 80
Flower garden—
  Ranunculus ... 80
  Sweet Peas... ... 80
Fruit register—
  Apple Herring's Pippin 86
  Plum Diamond ... 86
Fungi as an international problem ... 77
"Gardeners' Chronicle" seventy-five years ago 77
Gardeners' Royal Benevolent Institution election 76
Gardeners' Society, a successful 75
Garden notes from South-west Scotland 84
Hardy flower border—
  Schizostylis coccinea Mrs. Hegarty ... 80
Horticultural Produce Act 82
Indoor plants—
  Eucharis amazonica 80
  Gardenias 80
International Horticultural Conference in Vienna 77
James I, and Mulberry trees 86
Jasminum nudiflorum 86
Lobjoit, Mr. W. G., retirement of ... 75
Mason, Mr. H. T. ... 76
Mesembryanthemum 84
Mistleto 85
Obituary—
  Bayford, C. A. ... 90
  Elliot, Walter Ramsay 90
  Goericke, Emil ... 90
  Macdonald, Alex. ... 90
  Taylor, James ... 90
Parks and gardens, public 87
Phloxes as bedding plants 77
Plants of the Bay Islands, economic ... 81
Rose garden—
  New Roses in America 81
Societies—
  Banffshire Horticultural 90
  British Florists' Federation 89
  National Rose ... 88
  Royal Caledonian ... 87
  Royal Horticultural 88
Sugar Beet, the cultivation of 75
Trees and shrubs—
  Sophora tetraptera 81
  The flowering Ash... 81
Vegetable garden—
  Celeriac 87
  Onions 86
Week's work, the ... 78
Welsh garden, notes from a 83

ILLUSTRATIONS.

Celeriacs, Close Planting and Giant Prague 87
Cypripedium nitens Leeanum var. Becktoniae... ... 83
Lithops bella, 85 ; L. Mundtii 85
Mason, Mr. H. T., portrait of 76
Pear, the Avocada 81
Phlox, Mrs. M. van Hoboken in Hyde Park 77
Rimaria microsperma 85
Syringodea pulchella 79

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 39·5°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 26, 10 a.m. Bar. 30·0. Temp. 42°. Weather, Dull.

Cultivation of Sugar Beet.

The Conference on the Culture and Manuring of Sugar Beet, which was held at the Rothamsted Experimental Station on January 19, should, and we hope will, mark an epoch in the history of Sugar Beet growing in this country. Although a large number of extremely interesting facts were brought to light at the Conference, the one outstanding fact is that the average yield of Sugar Beet per acre in this country, after some three years of experience of growing it as a farm crop, is no more than eight-and-a-half tons per acre. The lowness of this yield is a natural source of anxiety to the Sugar Beet factories and should cause no less anxiety among all those interested in the cultivation of the crop; for, according to statements made at the Conference, if no increase of yield be made before the subsidy comes to an end, the prospect for the Sugar Beet industry will be of the gloomiest. It is certain that the most valuable work done at the Conference consisted in making clear to what this lowness of yield is due. It lies, apparently, not in the quality of the Beet, but in the method of cultivation, and there is, therefore, good ground for believing that when farmers gain more experience in the cultivation of the crop they will be able to increase the yield by something like one-half as much again. A firm seed-bed, proper spacing of the drills and early singling of the plants are matters to which the farmer must devote more attention than he has done in the past. In the eastern part of England the drills are often twenty-two to twenty-four inches apart—a heritage from Mangold cultivation—and this width is, according to the best practice, far too great. It would seem from figures cited at the Conference, that the heavier yields which have obtained in the west of England are due to closer spacing of the roots. There is ample evidence also to show that the proper time for singling the plants is the earliest moment at which the operation can be performed. With respect to the subject of growing Beet on ridges or on the flat, opinion was divided; but we think that divisions of opinion may be harmoniously joined, if it be remembered that Sugar Beet is a plant which—both by its origin and its habits—requires a considerable degree of warmth during its growing period. We think, therefore, that the *mot d'ordre* should be "ridge on cold soils and flat on the warm." The very important subject of the manuring of the crops was also considered at the Conference, and it was extremely interesting to discover that not enough attention is yet given in this country to the time of application of fertilisers. Everyone who knows anything of plant physiology understands that the building up of the body of the young plant depends on an adequate supply in the soil of suitable nitrogen compounds, and that, therefore, and particularly in the case of a crop which has to be sown somewhat late after frost is no longer to be feared, nitrogenous fertilisers should be put on early. Potato growers have long since exploited this fact, and several farmers who attended the Conference claimed that by early application of nitrogenous fertilisers, sulphate of ammonia or nitrate of soda, for example, they had succeeded in increasing their yield, and declared, as we think, rightly, that they had no intention whatever of growing Sugar Beet without this cheap and effective aid to cropping. Of other fertilisers it appears that the supply of available potash in the soil is peculiarly important. Here again, experience is in accord with physiological fact, for it has long been recognised that potash plays a definite, if obscure, part in facilitating transport of sugar to the storage organs of plants. In the light of these facts, it seems to us undeniable that everybody concerned in disseminating agricultural knowledge should make an immediate and strenuous effort to induce cultivators to put these precepts into practice. That done, there will still be time to effect further progress in yield by paying attention to the breeding of varieties suitable for the different types of soil and climate of this country.

The Controller of Horticulture.—The news that Mr. Lobjoit is about to resign the office of Controller of Horticulture in the Ministry of Agriculture will be received with general regret. Mr. Lobjoit has occupied the position of Controller for some six years, and during that time has done a great deal to advance horticultural interests. The years during which he has held the office were, perforce, lean years, and we can well imagine that it will take a long time for Mr. Lobjoit, after his retirement, to get rid of the sound of the word "economy" ringing in his ears. On the retirement of Mr. Lobjoit, Mr. H. V. Taylor, who has acted with conspicuous ability as Mr. Lobjoit's deputy, is to assume control. Mr. Taylor, however, is to bear the title of Commissioner and not of Controller; and we may be forgiven if we see here the thin end of the wedge of reaction. It was only after a long struggle that horticulture got itself recognised in the eyes of the Ministry of Agriculture as a craft in itself and not an elegant appendage to agriculture. Now, as we understand it, the rank of Commissioner in the Ministry is a subordinate one; and although, of course, all officers of the Ministry are subordinate to the Minister and the Permanent Secretary, that amount of subordination is, we think, quite sufficient for the healthy existence of anyone whose duty it should be to exercise forethought, imagination, energy and judgment in the interests of horticulture. We trust that our suspicions are groundless and that the chief representative of horticulture at the Ministry will continue to hold a rank which does not unduly subordinate him. Horticulture only won its present position at the Ministry after a sharp struggle, and could only have won it by justifying its claims in the eyes of the chief officials of the Ministry. During the years of Mr. Lobjoit's controllership it has done nothing to forfeit that goodwill. We may, therefore, hope that it will continue to enjoy it and that the office of Controller of Horticulture will be kept in existence as an outward and visible sign of the Ministry's recognition of the importance of horticulture and its distinctness from agriculture.

A Big Flower Show for Blackpool.—Doubtless stimulated by the great success achieved by Southport, Blackpool is arranging to hold an important flower show on July 20, 21 and 22, and as the energetic Corporation and townspeople are setting about the task of organisation with their usual zeal and enthusiasm, there appears to be no doubt that they will succeed in establishing another first-class flower show in this country. It is to be held in the new 288-acre Stanley Park, which was opened only last October by the Earl of Derby, and the close proximity of the Italian Garden and Rose garden, with the tennis courts, bowling greens, golf course, putting green, cricket ground and twenty-six-acre boating lake, will undoubtedly form an ideal setting for the show. Committees have been formed and several well-known horticulturists have undertaken to give the benefit of their experience. The Mayor of Blackpool is President, whilst Mr. A. Blackburn, Corporation Parks Superintendent, has been elected Show Manager, and Mr. W. Foster, Borough Advertising Manager, is filling the office of Secretary. The Schedule is in course of preparation, and already four trophies, value one hundred guineas, twenty-five guineas and twenty guineas (two) have been promised. The Mayor is issuing an appeal for further trophies and prizes, and there is every indication that a big number will be received. Exhibitors are to be offered every encouragement and facility.

Retirement of Cologne Municipal Garden Director.—After twenty-five years' service with the City of Cologne as Director of Parks and Gardens, Herr Encke has retired to his native town of Homburg vor der Höhe to enjoy a well-earned rest. Previous to his appointment in Cologne in 1903, he was for twelve years a professor of horticulture at the horticultural college at Wildpark, near Potsdam. For the parks and open spaces of Cologne good has certainly come out of the evil of the Great War. Previously, Cologne was a fortress, its growth and development cramped by the necessary girdle of fortifications. Now that these are being demolished by direction of the Allies, ample room is being found for a ring of open spaces which are fast developing according to the plans skilfully prepared by Herr Encke and his colleagues, and in which he will doubtless continue, in retirement, to take the keenest interest. Although sixty-five years old, he is still at heart a young man, and his friends are convinced that there are many years of happy and active life before him.

A Successful Gardeners' Society—The Guildford and District Gardeners' Association has no fewer than 1,014 members, and thus constitutes one of the largest associations of its kind in the country. A social evening, held on the 13th inst., was attended by nearly two hundred members. The President, Alderman W. T. Patrick, J.P., congratulated the Association on having enrolled over one thousand members and stated that Lt. F. W. Imms had accepted the office of show secretary, rendered vacant by the resignation of Mr. Tylecote last October.

Trespass by Cattle.—At the Windsor County Court, on Saturday, January 22, an action was tried in which compensation was claimed for damage caused to a garden by cattle. It appeared that while cattle belonging to a Slough farmer were being driven along the highway they rushed down a private road, broke a gate and fences and damaged the lawn in the garden of Mr. Joseph Barnett, of Eastville, Bath Road, Slough. For the defence, counsel argued that there was no case to answer, as it was a risk which owners of property adjoining the public highway must necessarily undergo. The judge agreed, and, holding that negligence on the part of the defendant had not been proved, gave judgment for him.

Assault on a Well-known Nurseryman.—At Wimborne, last week, a soldier was fined for having assaulted Mr. J. J. Kettle, the well-known Violet grower, at Corfe Mullen. In his usual public spirit, Mr. Kettle had lent, free of charge, one of his fields for the playing of a local football cup-tie and, naturally, made it a condition that the spectators should be confined to this field. A soldier was trespassing on another field, and when Mr. Kettle remonstrated, and pointed out the proper entrance, the soldier became very abusive and assaulted him.

Dean Hole Memorial Medal.—As will be seen on reference to our report of the annual meeting of the National Rose Society, the Dean Hole Memorial Medal has been awarded to Mr. C. C. Williamson, the retiring President. Mr. Williamson is a keen amateur rosarian, and his term of office has been marked by great progress in the membership of the Society.

L.C.C. to Oppose the Covent Garden Market Bill.—At a meeting of the London County Council, on the 25th inst., the Parliamentary Committee recommended that petitions should be presented against the Bill for the removal of Covent Garden Market. Dr. Scott Lidgett said he hoped the Council would formulate a scheme for retaining the Foundling Hospital site an an open space.

Sweet Pea Annual.—The members of the National Sweet Pea Society are well-served in the matter of their yearly publication, known as the *Sweet Pea Annual*, for it is one of the most interesting of all brochures published by the special floricultural societies. The *Annual* for 1927 is especially interesting in that it contains the prize essays selected from some twenty in competition for prizes offered by the Society. The first prize was awarded to the essay written by Mr. J. D. Dixon, Lyndhurst, Rotchell Park, Dumfries, who gives his experiences with Sweet Peas, and shows how his interest in the flower grew from his initial efforts in 1916, until he was successful in winning the cup for twelve vases in the competition for the blue ribbon of the local Sweet Pea world. Mr. Dixon tells the story of his success in growing his Sweet Peas in a very interesting narrative. The second and third prize essays are published in the *Annual*, also extracts from others. The frontispiece is an excellent portrait of Mr. J. M. Bridgeford, the President of the Society for the present year, and there are also portraits of Mr. W. Cuthbertson, who was awarded the Henry Eckford Memorial Gold Medal for 1926; Mr. F. T. Wheler, Chairman of Committee; and Mr. J. D. Dixon, who submitted the first prize essay. Mr. Cuthbertson contributes an article on "A Sweet Pea Show in California," and an illustration shows Mr. Cuthbertson amongst a group of noted growers of the Sweet Pea in America. The Floral Committee's report of the trials for 1926 is illustrated by several pictures, and there is the usual classifications list, the list of too-much-alike varieties, and the varieties especially recommended by the Floral Committee for general garden cultivation. In the audit of Sweet Peas, the variety Charming was included in 19 first, 17 second, and 11 third prize collections, at the annual show at Cheltenham, followed by Constance Hinton, in 18 firsts, 14 seconds, and 6 third prize sets; Powerscourt, in 14 first, 17 second and 9 third prize exhibits; Youth, in 16 firsts, 10 second and 8 third prize sets; Hebe, in 12 first, 7 second and 6 third prize collections; and Mammoth, in 11 first, 5 second and 3 third prize exhibits; thus showing these to be the six most popular exhibition varieties.

Mr. H. T. Mason.—The newly-elected President of the British Florists' Federation for the year 1927 comes from a family which has for many generations followed the cultivation of fruits, flowers and vegetables for the London markets. So soon as he had finished school, Mr. H. T. Mason maintained the family traditions by entering the same kind of business and gaining proficiency as a cultivator. In 1894 he established himself at Hampton and at first devoted his attention to the production of Strawberries, vegetables and a few flowers, but his great love for flowers gradually led to an increase in the extent of their cultivation until now, with establishments at Hampton Hill and Thorpe Lee, Egham, the production of flowers amount to about nine-tenths of the whole business, the chief flowers grown for market being Carnations, Roses, Chrysanthemums and bulbous subjects. Mr. Mason's most important branch in fruit cultivation is the production of exceptionally fine Cox's Orange Pippin Apples for market. Ever since its inception, Mr. Mason has been a member of the Committee of the British Florists' Federation, and his elevation to the Presidency is a tribute to the high regard in which he is held by his fellow members, to his regular attendance at meetings and his quietly persistent efforts on behalf of the Federation and the flower-growing industry. Mr. Mason is an enthusiastic member of the British Carnation Society, was Chairman of its Committee in 1926 and is the President for 1927. He has not neglected local affairs as he was for twelve years a member of the Hampton Urban District Council. Now that he has three stalwart sons associated with him in his business he has some amount of leisure wherein to serve the several societies in which he is especially interested, and his many friends wish him health and a happy and useful year of office in the Presidency of the B. F. F.

MR. H. T. MASON.

President British Florists' Federation, 1927.

Tragic Accidents to Scottish Foresters.—Two accidents, both of which ended fatally, occurred recently in the North of Scotland. Mr. Charles Kerr, Kintessack Village, Morayshire, employed by the Forestry Commission, was engaged on the Culbin Sands cutting Broom with a shear-hook, when it slipped, and inflicted a severe wound on his left leg, between the knee and the ankle. He died three days later. Dr. Beaton, who attended Kerr, declares the wound was perfectly healthy, the cause of death, in his opinion, being due to pneumonia and heart failure, brought on by exposure and haemorrhage. The second tragedy occurred at Huntly, Aberdeenshire, on January 21. A number of woodmen on the Duke of Richmond and Gordon's estate were cutting trees in the Meadow Plantation. A large tree was being sawn through, and when almost finished, part of it broke away, and the workmen near got out of its course as speedily as possible. The other part of the tree which remained in the ground was slevered up to a height of about ten feet. One of the woodmen, Mr. James Gordon, Huntly, was standing near with axe uplifted to strike, when, all of a sudden, this part of the tree fell in his direction and, striking the axe as it did so, drove it several inches into the poor fellow's head. Death was instantaneous, for not only was his skull cleft, but it was fractured by the weight of the tree. Gordon was a highly esteemed employee on the Gordon-Richmond estates for many years.

Birthdays.—Very many horticulturists throughout the country will remember Mr. Thomas Manning who, for a long period of years, was general manager for Messrs. James Veitch and Sons in the spacious days of the old Chelsea Nurseries, and will be interested to learn that he celebrated his ninety-fourth birthday on Sunday, January 23, and is in good health. Another interesting personality is Mr. Peter Veitch, of Messrs. Robert Veitch and Son, Exeter, who celebrates his seventy-seventh birthday next week, and was present at the meetings of the Royal Horticultural Society and the Gardeners' Royal Benevolent Institution on Tuesday last.

Gardeners' Royal Benevolent Institution. Election.—The eighty-seventh annual meeting of members and subscribers to the Gardeners' Royal Benevolent Institution was held at Simpson's, Strand, London, on Tuesday last, under the presidency of Mr. Leonard Sutton. Although the original arrangement was to elect twenty candidates to the benefits of the Institution, it transpired that two beneficiaries had died, and as the Committee were in a position to place two other candidates on the funds, the meeting agreed to the election of twenty-two candidates and the appointment of two others, making twenty-four in all. The successful candidates, with the votes polled, were: Mr. Walter Davis, 5,292; Mr. John Kitt, 4,763; Mr. Robert F. Sawford, 4,711; Mr. Fred W. Arnold, 4,158; Mrs. Ann E. Newell, 4,152; Mrs. Fanny Povey, 4,122; Mr. Henry T. Newman, 4,050; Mrs. Sarah A. Easey, 3,911; Mr. Henry Osman, 3,899; Mrs. Sarah A. Sheppard, 3,803; Mr. Henry Tedder, 3,752; Mr. Wm. H. Robbins, 3,628; Mr. Gilbert Sleep, 3,537; Mrs. Eilza Donovan 3,522; Mr. Joseph W. Liddicoat, 3,320; Mr. Frederick Turland, 3,275; Mrs. Martha A. Woolford, 3,218; Mr. Walter S. Coleman, 3,155; Mr. Stephen Sedgwick, 2,953; Mr. Charles Blurton, 2,877; Mrs. Harriet C. Mansey, 2,877; and Mr. Henry W. Gray, 2,445. The two candidates placed on the pension list by the vote of the meeting were Mr. Uvedale Jones and Mrs. Elizabeth Milliner, each of whom had been unsuccessful during four elections. The forty-eight candidates polled a total of 115,376 votes. A full report of the proceedings will be given in our next issue.

Scottish Sugar Beet Crop Returns.—At the annual dinner of Fife Agricultural Society, at Cupar, an important statement relative to the development of the Sugar Beet industry in Scotland was made by Mr. A. Aitkin, Agricultural Adviser to the Anglo-Scottish Beet Sugar Corporation. In 1912 the maximum yield of sugar from Beet was 15 per cent., while last year the highest returns at the Corporation's six factories gave 24·3 per cent. of sugar. The directors had shown their confidence in the farmers as growers by deciding to double the capacity of three of their factories, and they hoped before long to adopt a similar proceedure at Cupar, where they had already signed contracts for 4,209 acres of Sugar Beet in 1927. They hoped soon to have 6,000 acres contracted for, and when they reached 8,000 acres the directors would seriously consider doubling the capacity of the Cupar factory. The Corporation made 35,000 tons of sugar from last year's crops and the acreage devoted to the crop in Scotland had increased from 8,000 tons in 1922 to 128,000 tons in 1926. At Cupar factory nearly 19,000 tons of Scottish Sugar Beet had been received.

Phloxes as Bedding Plants.—The perennial Phlox is one of the most valuable of hardy flowers and suitable either for the mixed flower border or for massing in large beds. The illustration in Fig. 40 shows a big bed in Hyde Park furnished entirely with Phlox Mrs. M. van. Hoboken, a beautiful variety with large, soft, pink flowers, and of dwarf, bushy habit. The large bed illustrated was one of the attractions in Hyde Park last season. The ease with which the border Phlox is propagated and cultivated makes it everybody's flower, and few subjects give such a fine display over a long season for such little trouble or expense.

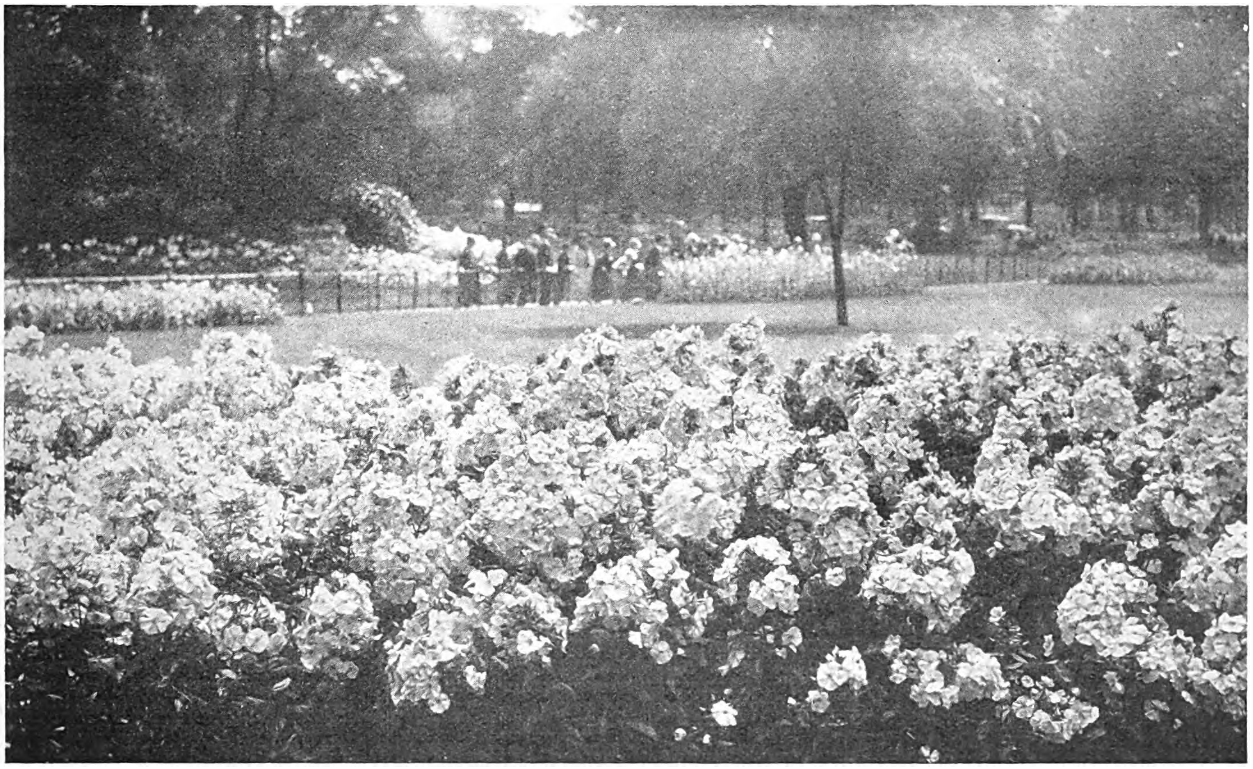


FIG 40.—PHLOX MRS. M. VAN HOBOKEN IN HYDE PARK

Fungi as an International Problem.—This was the subject of a paper communicated to the meeting of the Botanical Society of Edinburgh on Thursday of last week. The author, Mr. Glen Gardner Hahn, is a member of the Bureau of Plant Industry, United States Department of Agriculture, and is at present carrying out research work on forest-tree diseases with Dr. Malcolm Wilson in the Mycological Department of Edinburgh University. He pointed out that the economic conditions resulting from the international distribution of fungi were of such magnitude that they not only affected the agricultural resources of nations but the very lives and happiness of the people themselves. The one devastating disease more than any other which brought concerted action in America for the protection of the flora and agricultural crops was the Chestnut-bark disease. The disease had practically exterminated the native American Chestnut. As a direct result of the ravages of that disease, which came from the Orient, plant quarantine laws for the regulation of foreign plant importations were instituted in 1912, and two years later Canada adopted similar protective measures. The Blister-rust of Weymouth Pine was another serious forest disease which originated in Siberia and had existed in Europe for sixty-five years. Recently it had been found in British Columbia and the State of Washington, where it now threatened America's greatest White Pine resources. It had been found that Weymouth Pines were subject to little or no damage from rust if Black Currants were not growing within a mile, and no other Currants or Gooseberry bushes within nine hundred feet, so that by the elimination of the alternate plant host upon which the rust depended for its complete life cycle the very valuable White Pine might be preserved.

International Horticultural Conference in Vienna, 1927.—The preliminary programme of subjects to be discussed at the International Horticultural Conference to be held this year in Vienna has been issued, as follows: 1 (a) International regulations for a nomenclature of novelties; Starting an international register of novelties; (b) International agreements on granting certificates; Starting an international book of awards; (c) International agreement on uniform colour descriptions. 2, Horticultural experiments and methods of cultivation. Is it useful to annex institutes concerned with experimental horticulture to horticultural schools? or, is it desirable to leave the former independent? 3, Public horticulture; cooperation between the administration of the State and the administration of communities respectively. 4, Development of the present international committee for horticultural congresses into an International Office for Horticultural Congresses. 5, International agreements concerning commercial fruit trees, *e.g.*, height of trunk, stocks, etc.; 6, Agreements on the organisation of the exchange of young nurserymen for additional training. 7, Questions regarding the position of horticultural architects, protection of the title, etc.; 8, Application of the results of contemporary investigation into the laws of inheritance concerning practical (a) vegetable growing, (b) flower growing. 9, Inquiry into the conditions of the time of flowering and of fertility of fruit trees.

Appointments for the Ensuing Week.—Monday, January 31: Harrogate Horticultural Association's meeting. Tuesday, February 1: Bolton Horticultural Society's lecture; Royal Caledonian Horticultural Society's meeting. Wednesday, February 2: Nottingham and Notts. Chrysanthemum Society's meeting. Thursday, February 3: Manchester and North of England Orchid Society's meeting. Friday, February 4: Accrington and District Chrysanthemum Society's meeting; Dundee Horticultural Society's lecture. Saturday, February 5: Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Mr. Warszewicz's Orchids from South America.*—An arrival of Orchids, *via* Panama and Chagres, by the Clyde (after a rapid passage of thirty-nine days from Guayaquil) from Mr. Warszewicz, collected on the Cordillera of the Andes at Quindios, is advertised by Mr. Stevens for sale next week. From what we learn, and observe by the drawings and specimens of some, they appear to consist of Cattleyas, Odontoglots, Oncids., and many other genera. But as Mr. Skinner, to whose charge Mr. W., as usual, has sent them, has not been able in his present family affliction, to attend to them, the catalogues will describe them fully when issued early in the week. We would only add that the very limited means at Mr. Warszewicz's disposal renders it desirable that gentlemen who are interested in his pursuits should do something on this occasion to assist him. He has been robbed in Guayaquil of one hundred dollars in cash, as well as his collections, and has now proceeded to La Paz, in Bolivia, without pecuniary resources. *Gard. Chron., January* 31, 1852.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Orchid Grower to LADY LEON, Bletchley, Park, Bletchley, Bucks.

Sophronitis grandiflora.—The more forward plants of this most delightful Orchid have commenced to expand their scarlet flowers and will remain in bloom for a considerable time. This Orchid should be grown in quantity as the vivid colour brightens the cool house at this season considerably. Water should be given the roots whenever they become dry, as the plants are not capable of withstanding a prolonged season of drought. Repotting is best deferred until roots commence to develop from the immature pseudo-bulbs. This Orchid thrives best suspended near the roof-glass at the warmer end of the cool house, with a free circulation of air.

Laelia pumila.—This charming little plant is another that may have attention should the compost be decomposed, so soon as fresh root-action is evident. Many Orchids deteriorate through being allowed to remain in a decayed compost too long; it is much better to repot them than allow them to deteriorate for want of fresh rooting material. Osmunda fibre is the most suitable material in which to grow this Orchid, and shallow pans the best receptacles, as all these small-growing plants are best suspended so that they may be exposed fully to light and air.

THE KITCHEN GARDEN.

By R. H. CROCKFORD, Gardener to THE RT. HON. LORD WAVERTREE, Horsley Hall, Gresford, N. Wales.

Early Potatos.—Arrange to have a succession of new Potatos from plants grown in pots, heated pits and frames. The pots should be ten inches or eleven inches in diameter and well crocked. The compost for growing Potatos should be of a friable, open nature, consisting of loam, three parts, leaf-mould, two parts and old hot-bed or old Mushroom bed manure, one part. Sprinkle the materials with soot before mixing them. About half fill the pots with the compost and place three tubers therein and allow only one strong shoot to develop on each set; four tubers should be placed in each of the large-sized pots. Cover the sets with three inches of the compost, which should be only slightly firmed. A suitable place in which to grow these early Potatos is an early vinery or Peach house that has been started, for they do not need a high temperature. When the shoots have grown about eight to nine inches long a top-dressing should be given, and so soon as the new tubers have formed, a weekly watering with liquid manure will prove very beneficial. Choose early-maturing varieties, also those that produce short haulm. Where heated pits and frames are available for growing this vegetable, use a somewhat similar compost as recommended for pot culture. Plant each tuber at least twelve inches apart. When the top growth commences, endeavour to keep it as sturdy as possible and top-dress the roots when the haulm is sufficiently advanced. Water the soil sparingly until growth becomes active.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Gloxinias.—If early flowers are desired, a batch of last year's seedling tubers may be started into growth. Place the tubers in boxes containing leaf-mould and sand and start them in a warm temperature. When they are growing freely place them in the receptacles they are to flower in. Gloxinias thrive best in a brisk temperature.

Hippeastrums.—Bulbs of Hippeastrums that have been resting for the past three months may be started into growth at will. It is not always advisable to start the whole of the plants at the same time, it being best to arrange for them to flower in batches at intervals. It is important in growing early Hippeastrums to select those that ripened their growths satisfactorily last autumn, and these, in all probability, will not require repotting, for this bulbous plant resents frequent disturbance at the roots. The selected plants should be well soaked in luke-warm water in order to wet the whole of the soil and roots thoroughly. After soaking them they should be turned out of their receptacles and the drainage put in order. Remove as much of the old top soil as possible without damaging the roots, and substitute a rich, sweet compost. These early plants will send up their flower stalks with more freedom if grown over bottom heat from a bed of leaves. With this treatment, very little water will be required at the roots until such time as the flower spikes begin to develop and some leaf growth is made. The whole of the collection will need attention within the next few weeks; should any plants require repotting, use as small a receptacle as possible. Seedlings raised last year and kept growing through the winter may require larger receptacles, and now or within the next few weeks will be a suitable time to repot them. Use a rich, open compost to which bone-meal has been added.

Imantophyllum (Clivia).—Plants that have been grown in cool conditions and on the dry side may now be watered and placed in more warmth to have them in flower at an early date. I strongly recommend arranging for a few plants to be divided and repotted each year; this will keep the collection in a healthy, flowering condition. Clivias flower best when the roots are restricted in a small space, and they must be fed liberally with liquid manure during their season of active growth. Seedlings raised last year should be kept growing and given more root space when necessary.

Cinerarias.—The earliest plants of greenhouse Cinerarias will soon be developing their flowers and now that their receptacles are filled with roots they will require examining frequently with regard to watering. Stimulants may be given more freely than hitherto and at an increased strength. If it is desired to hasten the development of the flowers, the plants may be grown in a somewhat warmer house than hitherto, but it should always be remembered that the Cineraria is a cool greenhouse plant. Later batches should be grown under cool conditions, using only sufficient fire-heat to exclude frost. Aphis should be kept under control by light fumigations or spraying with an insecticide on frequent occasions, until the flowers expand.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet, Middlesex.

Plums on Walls.—If the pruning and regulating of the branches of these trees have not yet been done, complete the work before the buds begin to develop. Established trees require much the same kind of pruning as the Cherry. Shorten all side-shoots of last season's growth and those not required for extension to within a few plump buds. If the walls are not yet completely furnished with the tree, allow the leader to extend quite twelve to fifteen inches at each year's pruning until the whole of the space is filled. The finest Plums are generally produced on two-year-old wood, therefore a few young shoots should be retained at intervals and secured to the walls where there is room between the older branches. See that the ties and fastenings do not compress the shoots and that the nail heads do not come in contact with the bark, as both may cause gumming. Trees that have borne freely for several years should be given a top-dressing of suitable compost after removing some of the exhausted surface soil. All young trees growing too strongly to be fruitful should have their roots lifted and replanted, mixing plenty of lime rubble with the staple.

Orchard Trees.—Trees in orchards should be pruned more or less annually. Any which may have been neglected and become crowded with useless wood should be thinned of some of the branches before the buds are far advanced. Remove all interlacing branches and spray wood in the interior parts of the tree to allow light and air to enter freely. Two operators should undertake the pruning of large trees, one on the ground to direct the pruner as to which branches to remove. After the pruning is finished, remove all the prunings from the ground and, in suitable weather, spray the trees with an alkali wash or some other suitable specific. The old practice of dressing the trees with lime is to be recommended if the stems are covered with lichen, etc. American blight has been very prevalent here during the past two or three seasons, notwithstanding repeated dressings with various specifics. I have not used carbokrimp but hope to do so this season.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to COLONEL SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Figs.—If the trees are in pots and the latter plunged in bottom-heat, a mean temperature of 75° should be maintained by turning the fermenting materials on frequent occasions and adding fresh dung and leaves as is necessary. The roots should be fed with clear diluted liquid manure warmed to 80°. As growth proceeds, pinch the shoots at the fifth or sixth leaf, remove all useless spray growth, and tie such shoots as are necessary to make a well-balanced head. The temperature in later houses containing trained trees which have been started should be increased to 60° on mild nights, and 70° to 75° by day with sunheat. Water the roots with water warmed to 80° and syringe the trees regularly. Keep late houses cool by ventilating freely; the starting of the trees into growth will be governed by the absence or presence of fire-heat. Short, stout pieces of wood with good terminal buds may now be inserted as cuttings; remove the lower bud to prevent suckers from developing and plunge the pots in bottom-heat.

Winter Cucumbers.—The mild weather of early January was highly favourable to the development of Cucumbers without the aid of excessive fire-heat. Autumn-raised plants are looking extremely well and will no doubt give a good supply of fruits when they will be most valuable. The syringe may be used more freely for damping the walls and other available spaces in bright weather, but guard against damping the pipes when they are very hot. The plants should not be pinched too hard for the present, but the shoots may be stopped at a joint in front of a fruit promising to swell. Young shoots may be trained in thinly and divested of superfluous female and all male flowers. By daily attention to small details including feeding the roots with warm, diluted liquid manure and applying light, rich, top-dressings as often as the roots appear on the surface, insects and mildew will make no progress, and although the growth may be a little weak for some time, it will be fresh and healthy. The bottom-heat should range about 65° to 70° at night, and 75° to 80° by day, the maximum amount of warmth to be obtained with sun-heat.

Spring Cucumbers.—Stout, young plants are of great importance, and with more light and sun-heat a greater amount of moisture may be given the young plants that were planted on mounds of soil. Pinch out the points of the shoots when they reach the top of the trellises and stop the lateral shoots at each first or second joint, as they continue to grow. Protect the plants at night from cockroaches until they are well-established, and do everything to encourage the young plants to grow. Cover the roof-glass with mats in severe weather. Sow more seeds according to requirements and germinate them in a temperature of 65° to 70° and a bottom-heat of 75°.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Liliums.—Complete the work of planting Liliums so soon as possible, for the bulbs suffer quickly if left exposed to the air for some considerable time. If, for any reason, it is impossible to plant the bulbs, they should be laid in boxes or trays and kept covered with leaf-soil or fibre, or, if desired, they may be placed in pots and planted in their permanent quarters when they have started into growth. If this is done, they should be stood at the foot of a wall and covered with leaf-soil or fibre. In growing Liliums free drainage is one of the most important cultural details, and if the soil is not well drained, special sites and compost should be prepared for all but the very easily-grown species and varieties, such as L. Martagon and its varieties, L. Hansonii, L. croceum L. umbellatum L. chalcedonicum and L. elegans and its varieties all of which will succeed in a medium, well-drained loam. Lilium auratum and its varieties should be grown in a stony, well-drained compost free from lime, while many of the smaller and choicer species, as represented by L. rubellum L. japonicum, L. Parryi, L. Grayi and L. Farreri, enjoy a light compost mixed with plenty well-decayed leaf-soil; in a light, free soil. L. Farreri extends by underground stolons and soon makes a perfect mat of growths. In planting Liliums it is important to surround the bulbs with plenty of clean, sharp sand. Where a collection of Liliums is grown, the stock should be maintained by means of seedlings, or, failing seeds, scale leaves should be used as a means of increase.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Adiantums.—The present is a suitable time to repot many kinds of Ferns, which are usually grown in a warm house. Where the system of resting one half of the stock of Adiantums has been followed, the crowns of the rested plants are bristling with young fronds, a sure sign that root-action has commenced. If large specimens are desired, either for exhibition or house decoration, and the pots they are occupying are large enough, it may be sufficient to remove a quantity of the surface soil and substitute a compost of good loam, leaf-soil, sand and mortar-rubble. If, however, the plants are still in comparatively small pots they should be shifted into receptacles that will permit of at least one inch of soil being firmly placed round the existing ball of roots, using similar compost to that recommended for top-dressing. Increase of stock is readily accomplished by dividing the plants into small pieces and placing the latter in three-inch pots; these small plants will be found very useful for furnishing the front of the stages, etc. During the growing season, when the pots are again well-filled with roots, frequent applications of diluted liquid manure and soot-water will favour the development of dark green, luxuriant foliage.

Leeks.—Where large Leeks are desired during the early autumn, seeds should be sown now in a box containing rich soil, and germinated in a temperature of 50° to 55°. Cover the seeds at least a quarter-of-an-inch deep, a little more will do no harm, and so soon as the seedlings appear keep them as sturdy as possible by exposing them to the light. When the second leaf is developing the plants should be pricked out singly, either in small pots or in boxes of good soil, about three inches apart, from which a selection of the strongest may be made later, and potted up according to requirements. Keep the young plants growing steadily without a check by transferring them to larger pots as necessary until planting time, which is usually towards the end of May, when they should be transferred to well-prepared trenches. It is important in the young stages to keep the plants erect by means of small stakes.

Brassicas, etc.—Make sowings of the various members of the Brassica family, either in cold frames or in boxes in a cool house, and among these, Brussels Sprouts for early use, early and late Cauliflowers, and early and late Cabbages are the most important. Sow the seeds very thinly, as the vitality of the young plants is quickly decreased when they are crowded in the seed-box or bed; black-leg and damping-off diseases would be less prevalent were this rule always observed. So soon as the seedlings are showing their first pair of leaves they should be pricked out into good soil in cold frames and grown on sturdily until the time for planting arrives, when they may be lifted with good balls of soil and roots and planted in their permanent quarters. Sowings of Lettuces and Parsley may also be made under similar conditions to provide early supplies of these vegetables.

Fruit-houses.—Vineries in which fire-heat is not used should be closed in order to give the plants as long a season of growth as possible. These houses, having been cleansed and made ready and fully ventilated, may require damping each day in bright and sunny weather, but do not saturate the border at this stage. Once the ventilators have been closed they should not be opened again unless the temperature rises above 95°, which is not likely to happen in northern gardens until near the end of March, by which time the young growths will be well-advanced, and air may be admitted as found necessary.

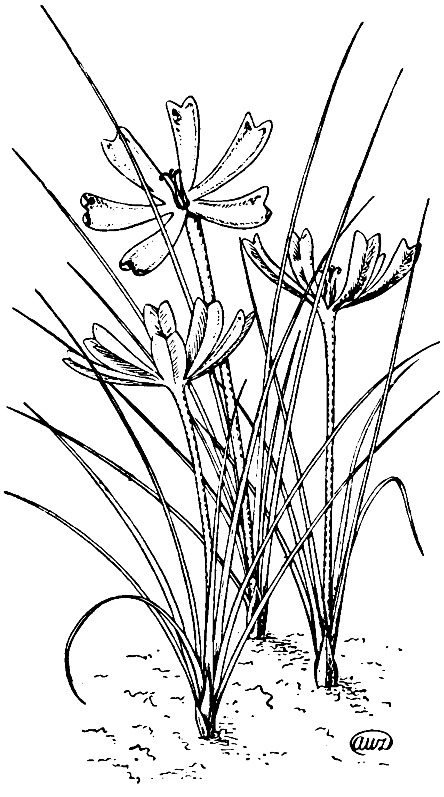


FIG. 41.—SYRINGODEA PULCHELLA.

Seed-sowing.—It is early yet for sowing many kinds of flowers, but those which are known to require a long period in the seed-pan before the seedlings are ready for pricking off may be sown first. Among other plants raised from seeds sown at this time are Begonias, Gloxinias and Gesneras. Care is necessary with these minute seeds to ensure that they are not covered deeply and that they are equally distributed over the surface of the soil in the pot or pan. Probably the best method with small seeds of the kinds mentioned is to fill the pan in the usual way, provide plenty of drainage, and after making the surface firm and smooth, to water the pan liberally, and when the soil is still moist to sow on the surface, completing the work by pressing the soil firmly again. If a further covering is desired the surface may be covered lightly with silver sand, but as most growers cover their pans of small seeds with glass and paper this is not absolutely necessary.

BULB GARDEN.

SYRINGODEA PULCHELLA (Hook.).

This delightfully dainty little bulbous plant is a member of the Natural Order Iridaceae or Rainbow Flowers, and takes the place in South Africa of the Crocus of the northern hemisphere. Some eight or nine species are known, all of which are confined to South Africa, mainly on the mountains of the more arid districts of Cape Colony. The species under consideration (S. pulchella (Fig. 41), grows in short grass in open, exposed, rocky places, on the Sneew Berg, Graaff Reinet Division, Cape Colony, at various elevations up to 4,500 feet, and is subjected to over 20° of frost for short periods in its native habitat, so should require but little protection in the south of England.

The root-stock is a globular corm about half-an-inch in diameter, with a thick, dull brown skin. The leaves, which number from four to six, are extremely slender, in fact, almost bristle-like, and from three to five inches long, curving gracefully outwards, overtopping the flowers. One or two beautiful blossoms are produced from the centre of each tuft of bristly, deep green leaves; their tubes are slender, as much as two inches in length, slightly curved or perfectly straight, very pale lilac in colour. The perianth is deeply divided into six wedge-shaped segments each being notched into two lobes at its tip, and are of a pale purple or lilac tint. The anthers are yellow and the filaments white. The blossoms, when fully expanded, measure from three-quarters to one inch across.

The corms should be planted during the month of March in the rock garden, in the sunniest spot available, in a pocket of rich, well-drained, sandy loam, covering them with about two inches of soil; they require plenty of water when in full growth, and should not be allowed to become dust-dry when at rest. A sheet of glass placed overhead when the corms are at rest will help to ripen them and give some protection from severe weather.

Syringodea pulchella is a very charming subject for the alpine house, where its fragile blossoms last longer in a decorative condition than they do in the outdoor garden. *A. W. D.*

BOG GARDEN.

The beauty and interest of a water garden is greatly enhanced by a well-kept grass bank in which may be planted at intervals of a few feet such bog and moisture-loving plants as Senecio clivorum, two-and-a-half feet; Iris aurea, four feet; I. Monspur, four feet; I. Shelford Giant, five to six feet; I. orientalis, four to five feet; I. Kaempferi, in many shades of beautiful colours, three ft.; I. Pseudacorus in yellow and white, four to five feet; Lythrum Rose Queen, four feet; Astilbe Arendsii in variety; A. Davidsii, Spiraea Aruncus, S. venusta; S. gigantea, from three feet to six feet (a very effective plant); Trollius in variety; Mimulus, in variety; Saxifraga peltata, with large, bronzy, peltate leaves and corymbs of white flowers (a very showy waterside plant); Rodgersia podophylla, a handsome foliage plant, the large, peltate leaves on stout stalks, three feet high, assuming a coppery-bronze colour with age; Gunnera manicata and G. scabra, both handsome plants with gigantic leaves on stout stalks; Primulus in variety; also the Royal Fern, Osmunda regalis in variety, and Nephrodium (syn. Lastrea) Thelypteris, both pretty waterside Ferns.

Many may venture on the hardy Cypripedium Calceolus, C. pubescens and C. macranthum, and hardy species of Orchids and Habenaria for the more shady parts; these Orchids grow splendidly in damp peat and sand.

There is an abundance of grass-like plants and Reeds which are indispensable for the bog garden and waterside planting. They give a tropical effect to the surroundings, especially the taller Bamboos, which do well when planted in positions sheltered from high winds. *W. L.*

FLOWER GARDEN.

SWEET PEAS.

If not already done, Sweet Peas should be sown in pots or boxes for planting out in beds or borders, or for planting in the reserve garden for furnishing a supply of cut flowers. The seeds should be dressed with red-lead, or protected in some other way from the attacks of mice. The ground in which the seedlings are to be planted should be prepared now, if not already done, and the addition of good loam is very important in the case of poor, sandy soils. Sweet Peas, sown out-of-doors during the autumn, should be protected from sparrows and slugs; they should also have some timely support, small sprays of Hazel being excellent for the purpose.

RANUNCULUS.

Although the corms of Ranunculus may be planted during the autumn, I have always found it best to defer planting them until the beginning of February, unless the garden is in a very favoured part and the soil light and warm.

The beds or borders should be well-drained, and in cold, low-lying situations should be raised above the general level. It is an advantage to have the beds or borders dug and well manured some time before planting. The claw-like roots should be set carefully about four inches or five inches apart in drills made about three inches deep. On cold, heavy soils it is advisable to surround the roots with clean, sharp sand. Ranunculuses are usually offered in three sections, viz., Persian, French and Turban varieties, and while they are all beautiful I have found the French varieties most useful for furnishing cut flowers, and am surprised the plants are not more generally grown for this purpose. *J. Coutts.*

TWO PRETTY BEDS.

One of the most charming effects I noticed in the flower garden last spring was an oval bed of Phlox canadensis, interplanted with Darwin Tulip Farncombe Sanders. The rich scarlet flame-colour of the Tulips towering above the light green foliage and Plumbago-blue flowers of the Phlox appealed strongly to me. The Tulips seemed to be in graceful harmony with the slender, though abundant growth of the Phlox.

Another artistic combination of flowers I observed last season was provided by planting Kniphofia aloides grandiflora with Galtonia candicans, both autumn-flowering subjects and highly attractive when planted in bold groups. The scarlet pokers blended beautifully with the bell-shaped, snow-white flowers of the Galtonias.

For an autumn display both these flowers may be planted during the early spring, and they will revel in good, sandy loam. Plant the Galtonias four inches deep and nine inches apart. *W. L.*

HARDY FLOWER BORDER.

SCHIZOSTYLIS COCCINEA MRS. HEGARTY.

Schizostylis coccinea, the Kaffir Lily, is a handsome Iridaceous plant, a native of South Africa, and valued because, when planted in a suitable position, it produces its scarlet coloured flowers in the late autumn and winter.

The variety under notice is even more beautiful than the type, the flowers being of a delicate pink colour, and larger.

The plant succeeds well in a warm, well-drained, south border, and is suitable for planting at the foot of a wall.

Propagation is readily effected by dividing the plants in spring, and planting portions, each having five or six shoots, in well-prepared soil at a distance of nine inches apart. A liberal amount of peat or leaf-mould should be included in the soil, which should be a rather sandy nature.

When the flowers are developed to perfection they are valuable for use as cut blooms. *T. H. Everett.*

ALPINE GARDEN.

TOP-DRESSING ALPINES.

Many alpine plants are benefited by an annual top-dressing of fine soil worked in among the shoots, and this may be applied now. The compost used should be of an open, gritty character, for if composed of close, heavy materials, it may cause many plants to damp off.

Pockets of worn-out soil should be refurnished with fresh compost, and positions prepared for special plants; many rock garden plants have roots out of all proportion to their top growth, and such plants require a deep root-run; a depth of three feet is not too much for many of them. The compost in which such plants are grown may be composed very largely of small stones and gritty material, which nearly approximates to their natural conditions, and conserves moisture much longer during dry weather. *J. C.*

EUONYMUS KEWENSIS.

It is believed that this curious little shrub is a very dwarf form of Euonymus radicans, but as it does not appear to have flowered, that point must remain somewhat obscure.

E. kewensis is, at any rate, quite unique. It seems to be naturally prostrate, making a close-set tangle of leaves and branches no more than a couple of inches in height, though it will sometimes mound itself into a conical heap of leaves and stems. But if it is within reach of a convenient rock or other small shrub some of its branches will often ascend these, thus showing a propensity to climb.

The foliage is evergreen, and the ovate leaves of a dark green relieved by veinings of a lighter shade. These are about half-an-inch long and half as wide; the margins are a little decurved and often slightly toothed. Fortunately, this interesting plant seems to be quite hardy in a light, stony soil. It was introduced by Sargent from Japan in 1893. *J.*

INDOOR PLANTS.

GARDENIAS.

These useful shrubs, with deep, shining green leaves, the flowers of which are so delightfully fragrant and valuable for hand and buttonhole bouquets, should be grown wherever accommodation can be found for them.

G. florida and its varieties, Fortunei and radicans, are well-known and are the best for supplying cut blooms. They require a stove temperature and thrive in an open compost consisting chiefly of fibrous loam and peat. The plants should be repotted annually until they have attained a large size, when every other year will suffice.

Young plants produce the finest flowers, but large, old specimens are more valuable for the production of blooms in quantity, and should be grown so long as they can be maintained in health and vigour.

A moist atmosphere and frequent syringings during the growing season are essential details of cultivation. The plants should be kept free from mealy-bug and scale insects, to the attacks of which they are very susceptible.

By growing plants in successional batches they may be had in flower during most of the year without great difficulty. Propagation is effected by cuttings of young shoots taken with a heel, inserted in sandy soil and rooted in brisk bottom-heat.

EUCHARIS AMAZONICA.

This lovely Amaryllid is one of the most beautiful of all white-flowering plants, its large, glistening, wax-like flowers standing out with remarkable refinement.

Although it may be had in flower at almost any period of the year with judicious management, it is as a winter-flowering subject that it claims most attention. To have it in perfecton during the winter it is necessary to grow the plants on in a brisk temperature during the summer, when they should receive liberal supplies of water and enjoy the advantage of an abundance of atmospheric moisture. When growth is completed in late summer they may be given somewhat cooler conditions for a month or two and kept rather drier at the roots, but not so dry as to cause flagging. This will give the plants a good rest and when they are again afforded more heat and moisture they will soon begin to throw up their flower spikes and remain in beauty for a considerable period.

A suitable compost for this Eucharis consists of three parts good, fibrous loam and one part rotted manure, with sufficient sharp sand to render it porous.

Propagation is effected by division of the bulbs, which increase rapidly under generous treatment. The Eucharis is susceptible to the attacks of scale, mealy bug and thrips, but the broad, smooth leaves make it comparatively easy to keep them free from these pests. The most injurious pest is the Eucharis mite, but under good cultivation this seldom becomes a serious menace to the plants. *A. P. C.*

FLORISTS' FLOWERS.

THE MODERN SINGLE CHRYSANTHEMUM.

At exhibitions where single Chrysanthemums are shown well the visitor is first attracted by the variety Molly Godfrey and its forms Bronze Molly, Red Molly and Susan. Then, perhaps, Phyllis Cooper and Sandown Radiance appeal next, and after these such sorts as Mrs. W. J. Godfrey, Mrs. T. Hancock, Reginald Godfrey and Isabel Felton for their large size. Others like Catriona have too prominent centres or discs, and others may appear to have been made single by pulling away superfluous florets. The most perfect of all, those of the Mensa type, have somewhat small flowers with discs out of proportion. If the above estimate of popular exhibition single Chrysanthemums be correct, there is considerable room for improvement. The system of stopping the points of the plants in spring is prevalent with growers, and this has undoubtedly contributed to the defects that have been mentioned, more particularly the one of the flowers coming too double, and another which has not been named, *i.e.*, the foliage near the bloom developing over large. Many of the flowers of single varieties, if from early buds, will throw blooms that are nearly double.

A successful method of growing singles is to root the cuttings in January or February and, when ready, pot the plants in pairs, and subsequently treat them as one plant The growth is allowed to develop and branch at will and then thinned according to the size of the pot the plant is finally grown in. From the one branching there is usually a sufficiency of stems to carry from eight to a dozen blooms to a pot. It is found that the central branches of certain varieties develop too much vigour and when thinning is done it is well to begin with these extra strong shoots, which not only furnish comparatively coarse blooms, but prevent the others from growing evenly.

The shoots of many single varieties grown in a natural way rise to a considerable height before the bud, which is followed by branching, forms; and when this occurs the grower looks forward to the next bud, as being near the terminal, and it is then he anticipates securing the more characteristic flower. The best kind of growth is that hardened by firm potting, allowing the plants plenty of space through the season and feeding them moderately with stimulants.

From the aspect of the cut-flower trade, the singles have, with few exceptions, been wanting in substance of floret, and thus this type of the flower has been not nearly so much in evidence for market purposes as improved varieties are likely to be in the future. Phyllis Cooper and Sandown Radiance have both been very popular with florists, and the introduction of Absolute brought perfection somewhat nearer.

This and Laddie are remarkable for the lasting quality of the blooms although they are a trifle small. If the size of these single Chrysanthemums was improved and the colours more varied they would become very popular with the general public. *H. S.*

TREES AND SHRUBS.

THE FLOWERING ASH.

THE Flowering Ash (Fraxinus Ornus) is a beautiful tree when in full bloom, and I have often wondered why this very ornamental subject is not more widely grown. In some districts it may be fairly plentiful, but in others it is few and far between. As a specimen tree F. Ornus is very imposing; the single stem carries a dense, rounded mass of branches from within a few feet of the ground to a height of some fifty feet. The leaves, like the bark, are much like those of the Common Ash. The large flower panicles, which appear in spring at the ends of the young shoots, and which suggest those of a Spiraea, are white and very fragrant.

F. Ornus was introduced from Italy about 1730 as Ornus europaea. It is deciduous, apparently quite hardy and grows freely in a warm, free soil. It is said to be very satisfactory as a town tree. The practice of grafting this species on the Common Ash has led to disappointment, owing to suckering, and one feels convinced plants raised from seeds would be infinitely more successful. *A.*

SOPHORA TETRAPTERA.

THIS yellow-flowered, evergreen shrub, which is sometimes known as Edwardsia grandiflora, has proved to be among the hardiest of the New Zealand subjects grown here. It loses many of its dull green, pinnate leaves in winter, but the wood has not yet been injured. The flowers of the type are up to two inches long, but in the variety grandiflora they are at least four inches long. They are followed by curious "necklace" pods, and the seeds occasionally ripen here.

A remarkably pretty variety, or sub-species, is S. t. var. microphylla. This is a most elegant shrub, the slender, reddish branches bearing much smaller, more rounded leaves of the fresh, cool green of a Maidenhair Fern. Thus far, this form has not flowered here, but it is a more rapid grower than the foregoing which, for over fifteen years, has not exceeded a height of about four feet. *A. T. Johnson, Ro Wen, Conway, North Wales.*

ECONOMIC PLANTS OF THE BAY ISLANDS (HONDURAS).

(*Continued from p.* 70.)

CASHEW AND AVOCADA PEAR.

SOME travellers have reported that the Cashew tree has the stone outside the berry, but what is generally believed to be the fruit is in reality a fleshy, eatable stalk two inches to four inches (5 to 10 cm.) in length, which contains a sweet, astringent juice, and may be either red or yellow in colour. The real fruit is a kidney-shaped nut at the end of this stalk. The kernel of this nut may be eaten after the thick, black, caustic oil (cardol) which it contains, has been expelled by heat. For this purpose the fruit is roasted, after which the kernel is easily extracted. The latter is very delicious; in taste it reminds one of Hazel nuts.

The Avocado or Alligator Pear, Aguacate in Spanish (Persea gratissima, Gaertn.) is locally called "Pear" for short. It is cultivated throughout tropical America, from sea-level to an altitude of 6,500 feet (say, 2,000 m.), and in the island of Ruatan a wild species is found. The tree reaches a height of forty feet to sixty feet (12-18 m.); it has small white blossoms and oval-shaped leaves which, when young, are purple in colour.

The Avocado tree bears a Pear-shaped, green fruit (Fig. 42) with a large, round, oily seed in the centre, which separates readily from the firm pulp. The latter is white or yellowish in colour; it has the consistency of butter and contains abundant greenish oil. It is eaten after the addition of a little salt, or it is served as a salad. The Avocado is a very rich food and should find great favour with vegetarians. In the Bay Islands the fruits ripen in August and September, but, unfortunately, they do not keep long. Small quantities have been exported to the United States, where they are highly esteemed. There are several varieties differing in size, shape and quality, the red or purple sorts being inferior to the green ones. Of the latter, I have seen some weighing so much as four pounds.

GUAVA.

The Guava, or Guyaba (Psidium Guajava, L.) grows as a bush or small tree, reaching eight feet to ten feet (2·50 to 3 m.) in height, and is found both in a cultivated and in a wild state. It is easily propagated, needs no care, and is hard to kill. In some regions of Central America large areas are covered with this tree, which form a real jungle, the seeds having apparently been transported by birds; such places are known by the name of Guyabales.

The flowers are white in colour and have a very pleasant scent. The cultivated Guava fruit is about the size of a small hen's egg; it has a thin, smooth, yellow skin and a strong scent. The two most common varieties are the white or Pear-shaped one (P. G. var. pyriferum), and the red or globular variety (P. G. var. pomiferum). The former is the larger, and has a thinner skin; its yellow pulp is less acid than that of the red, thick-skinned variety. The latter is not much cared for; its pulp becomes red upon nearing maturity, but the skin remains yellow.

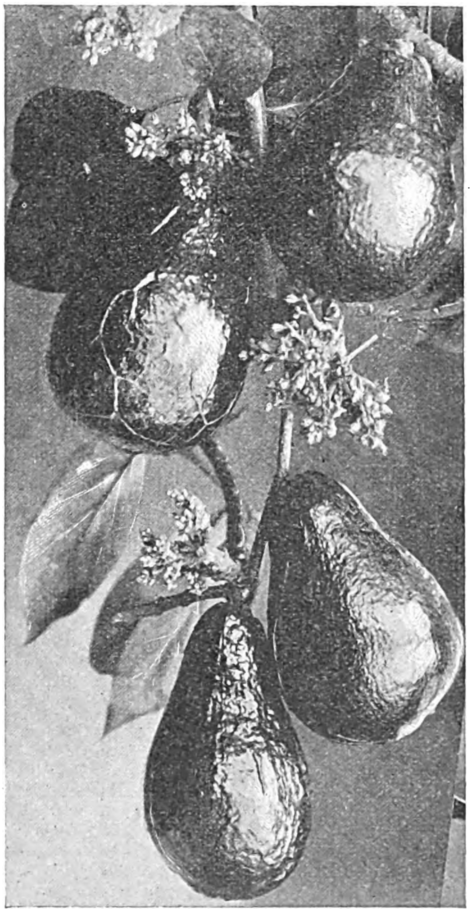


FIG. 42.—AVOCADA PEAR (PERSEA GRATISSIMA).

The pulp of the Guava is of a sub-acid flavour and may be eaten raw, but is said to cause indigestion in this state. It is also made into preserves for local consumption. The perishable fruit is not suitable for export, but from Cuba and Jamaica the well-known Guava jelly is exported to the United States and to England. When not fully matured the fruit is said to be an efficient remedy for diarrhoea; a decoction made from the boiled leaves, bark and roots is also used for the same purpose.

The Guava tree sheds the outer layers of the bark in large pieces, which curl into tight rolls and finally drop off. The wood is very strong and durable, but as the tree is very crooked and gnarled, it is of little value commercially; locally it is much esteemed as firewood.

SOURSOP AND ROSE APPLE.

The Soursop or Guanabana (Anona muricata), is the fruit of a small, tropical American tree with small, shiny, lanceolate leaves. The large fruit may weigh from two to five pounds (1 to 2½ kg.); it has a green skin which is covered with soft prickles. Many large brown seeds are embedded in the white pulp. The latter is very soft and juicy, slightly acid, but of agreeable flavour; it is much used in the making of ice cream and *refrescos*. Several parts of the tree have medicinal properties.

The Rose Apple or Manzana Rosa (Eugenia Jambos) is the fruit of a large tree with spreading branches, and long, narrow, evergreen leaves introduced from the East Indies and the Malay Islands. The small, round, sweetish fruit is yellowish in colour and has sometimes red cheeks; it resembles a small Apple and has a strong Rose-like fragrance, hence the name. It is claimed that the stone in the centre is poisonous, and that under certain circumstances a single one may cause the death of a person. The greenish-yellow or greenish-white blossoms are arranged in bundles. The young leaves are at first purple in colour, but soon they become green. The tree is propagated from the seeds. *Eduard Conzemius, 33, Boulevard des Batignolles, Paris.*

(*To be continued.*)

ROSE GARDEN.

NEW ROSES IN AMERICA.

AN unusual number of new Roses are being offered in America this season. While these are all primarily forcing varieties, it is entirely probable that they will also succeed out-of-doors if given suitable conditions. Perhaps the most sensational variety of the present spring is Rapture, from Messrs. Traendly and Schenck, a prominent firm of Rose-growers in Connecticut. This is really a much intensified sport of Madame Butterfly, pink with a satiny sheen, shaded orange at the base of the petals. Being a sturdy grower, this will undoubtedly put Madame Butterfly out of the running as a forcing Rose here. It is no doubt the finest novelty of the year.

Tottys' Red, from Messrs. G. H. Totty Co. Maddison, New Jersey, is the richest sport of Premier yet seen; the colour is crimson-scarlet, being really more crimson than scarlet. Florex, from the Florex Gardens, South Wales, Pa., is another lovely novelty; the colour is rich coral salmon. The plant produces long, strong shoots, but the bloom is rather weak in petalage. Fontanelle, a seedling of that most popular of all yellow Roses in America, *i.e.*, Souvenir de Claudius Pernet, is not so good in colour as its parent, but flowers much more abundantly. Roselandia has been grown to some extent, but is too small.

Columbia is rapidly losing favour as a forcing Rose on account of so many of the flowers coming "bull-headed"; Briarcliff, one of its sports, introduced last year, has been heavily planted and lacks the defects of its parent. It is the most popular of this particular colour here. There is also one named Silver Columbia, of paler colour, which is quite popular. Mrs. F. R. Pierson, a red sport from Premier, introduced in 1926, is meeting with a somewhat mixed reception; it appears to come very variable in colour and be rather too much subject to black spot; when well-grown, however, it is beautiful. Another novelty of the present season is Premier Supreme, of a very deep rose-pink shade; it has long, pointed buds and is a robust grower.

Madame Alexander Dreux has attained some favour as a forcer; the flowers are small, but the extreme richness of the blooms have caused it to be an excellent seller. It is only being handled in a moderate way compared with other Hybrid Teas.

Souvenir de Claudius Pernet is easily the leader amongst yellows here, both for forcing and outdoor culture. Fancy, long-stemmed flowers for Christmas trade realised $75.00 to $100.00 per 100, wholesale, a price which was equalled by Templar and surpassed by American Beauty, the latter realising $200.00 per 100 with four feet stems. *W. N. Craig.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

ADONIS GARDENS IN SCRIPTURE.

MANY interesting details in relation to the Gardens of Adonis were of necessity omitted from the article on this subject a year ago.* To one of these omissions it is proposed to devote the present paper, viz., that which relates to the references to the Gardens of Adonis in the Hebrew Scriptures. To many it will, probably come as a surprise that any such allusion should be found. Thanks, however, to the intensive study of the Bible, and classics of legend and myth during recent years, many new things have been brought to light. The comparative study of religions and traditions in the languages of Assyria and Egypt, of Greece and Rome, as well as of Sanskrit and other tongues has shown, not only that similar ideas prevailed among the different races of the Old World, but also that as they came into closer contact with each other they discovered many things of a religious nature which they shared in common; and as ages of intercourse went by each assimilated from the other some point of mutual interest. Thus there grew up a very mixed religion or mythology, and it is often exceedingly difficult to disentangle the mass.

Hence it came about that the Jews, to the great grief of their prophets and leaders, introduced into their religious ceremonies many usages which were in vogue among their so-called heathen neighbours. From among many which are well-known to all students of Hebrew lore we are able to select that which relates to the worship of Adonis. In the authorised version of the Old Testament we read (*Isaiah* xvii, 10): "Because thou hast forgotten the God of thy salvation, therefore shalt thou plant *pleasant plants*, and shalt set it (*i.e.*, the garden) with strange slips." If, now, we turn to the Revised Version, and read the marginal notes, we shall find this: "Because thou hast forgotten God, therefore thou plantest *plantings of Adonis*, and settest it with vine slips of a strange god." The earlier expositors found in these words a general allusion merely to Jewish apostacy. As Bishop Lowth remarked: "The pleasant plants and shoots from a foreign soil are allegorical expressions for strange and idolatous worship; vicious and abominable practices connected with it; and reliance on alliances entered into with the neighbouring nations." Naturally they overlooked the specific reference which later researches have brought to light. As Professor Cheyne observes, the ordinary rendering of the words, as found in the text of both the authorised and the revised versions, does not give a suitable contrast, nor does it suit the context. If it be objected that in the Hebrew text the name Adonis does not occur, the answer is that epithets, such as 'the pleasant one,' or 'the holy one,' often took the place of the name of the deity, which may have been tabooed; and so in this case Naaman, the pleasant, stands for a divine title. Ewald was the first, apparently, to see this, and the question then arose—What strange god is represented under this epithet? Now Naaman is the Hebrew equivalent of the Arabic *Noman*, which is not only a proper name, but also the name of the river Belus, which was the headquarters of the cult of Adonis. Further, the name for the red Anemone in Arabic is *shakaiku-n-noman*, which scholars interpret as 'the wounds of Adonis,' and from which some assert that the name of the Anemone is best derived. Similar names for the so-called "blood-plants" are to be found in all tongues, and corresponding legends respecting their origin. As to the origin of these names, recent researches into the operations of the primitive mind lead us to be sceptical of the usually received interpretations; but into this we are unable now to enter.

If, then, the phrase "pleasant plants" or "plants of Naaman" is to be taken figuratively, we shall read with Cheyne: "therefore thou didst plant plants of Adonis" or Gardens of Adonis, and vine slips of a strange god. In the *Encyclopaedia Biblica*, indeed, Professor Cheyne goes further than he did in his Isaiah Commentary. "The N. Israelites were at this time (he says) specially open to Syrian influences. They forgot Yahwe because he seemed unable to protect them. So Isaiah indignantly exclaims: 'Therefore, though thou plantest (little gardens with) shoots of Adonis, and stockest them with scions (dedicated) to a foreign god . . the harvest shall vanish in a day of sickness and desperate pain.' The phrase, 'shoots of Adonis,' he adds, points to the so-called 'Gardens of Adonis,' baskets containing earth sown with various plants, which quickly sprang up and as quickly withered. In reality they were symbols of the life and death of Adonis; but Isaiah takes the withering as an image of the withered hopes of Israel."

Cheyne finds here a trace of the worship of Adonis or Tammuz, which is even earlier than those found in Jeremiah and Ezekiel. As these are intimately associated with our subject it will be necessary to give them a glance. We read in *Jeremiah* (xxii, 10) that the people were not to raise the dirge "Ah my brother! or Ah sister! They shall not lament for him saying Ah lord!" which in Hebrew is literally "Ah Adon!"—a word from which many philologists assert that the name Adonis is directly derived. The reference in *Ezekiel* (viii, 14-18) is to Tammuz and the Tammuz-cult, and this is nothing other than the cultus of Adonis, as was recognised so long ago as the days of Jerome and other early Christian fathers. Adonis was a Syrian idol, say the old authorities, whose worship was celebrated in the temple of Venus at Byblus. To give one illustration: Lucian informs us that Adonis was slain by a wild boar, in memory of which the Syrians "every year (at the celebration of his festival) beat themselves and lament, and celebrate frantic rites (literally 'orgies'); and great wailings are appointed throughout the country; and after they have beaten themselves and lamented they first perform funeral obsequies to Adonis as to one dead, and afterwards on another day they feign that he is alive and ascended into the sky"—and more to a similar effect, from which account a tolerably good idea may be formed of the manner in which the Jews who had turned to idols lamented Tammuz.

There has been some confusion in the various accounts which have come down to us respecting the period of the year when the festival of Adonis was celebrated, as well as the period spent by Adonis in the nether world. This is due to the fact, alluded to above, that traditions from such different peoples as the Assyrians and Phoenicians, Egyptians and Greeks have been blended; so that Istar and Tammuz, Aphrodite and Venus, Osiris and Adonis, to mention no others, are terribly confused the one with the other. It is, therefore, of interest to note that Ezekiel specifies the month and day. It was in the sixth month and the fifth day of the month, which would correspond with the festival which, according to some, was regularly held in July. But, owing to the confused reports which have come down to us the Adonis festival was said to have been celebrated at different seasons of the year.

In order to understand our subject thoroughly, we must go back beyond the days of Plato, who mentions the Gardens of Adonis in his *Phaedrus*, as we shall see later, and examine the records of ancient Babylonia. It is among the early mythological poems which the Babylonians have bequeathed to us that we find the most primitive known form of the legend which was familiar to the Jews, and formed the basis of the rites alluded to in Ezekiel. This Babylonian poem, as Sayce informs us, recounts the descent of the goddess Istar into Hades in search of the healing waters which should restore to life her bridegroom Tammuz or Dumuzi, the young and beautiful Sun-god, the counterpart of the fair Adonis. This poem will be found translated and annotated in the Hibbert Lectures by Professor Sayce, who remarks that it throws light upon certain passages both in the Old Testament and in classical authors, and in turn receives light from them.

"On the one hand (he adds), we now know who was that Tammuz in whose honour Ezekiel saw the women of Jerusalem weeping at the gate of the Lord's house. On the other hand, it is clear that the Tammuz and Istar of the Babylonian legend are the Adonis and Aphrodite of Greek mythology. Like Tammuz, Adonis, the beloved one of Aphrodite, is slain by the boar's tusk, but eventually ransomed from Hades by the prayers of the goddess. It has long been recognised that Aphrodite, the Kyprian goddess of love and war, came to Hellas from Phoenicia, whether or not we agree with Dr. Hommel in seeing in her name a mere etymological perversion of the Phoenician Ashtoreth. Adonis is the Phoenician *Adoni*, 'my lord,' the cry with which the worshippers of the stricken Sun-god mourned his untimely descent into the lower world." Here we may refer again to the passage from Jeremiah, which Sayce renders: Ah me, my brother, and ah me, my sister! Ah me, Adonis, and ah me, his lady! An echo of this is found in Æschylus the earliest of dramatists, in his Agamemnon (line 121): "Cry Ælinon, Ælinon!" In Homeric times the chant was attributed to a supposed Linos, but in reality the Greek word Ælinos is a Phoenician cry, Ai-lenu, meaning Alas, for us! and with these lamentations the dirge at the Death of Adonis was wont to begin. *Hilderic Friend.*

(*To be concluded.*)

---

*See "Classical and Legendary Gardens" in *The Gardeners' Chronicle*, February, 1926, p. 136.

HORTICULTURAL PRODUCE ACT.

THE Horticultural Produce (Sales on Commission) Act, 1926, which has just come into operation, is a measure every gardener should become acquainted with, for, as its title indicates, it was passed to regulate the sales on commission of garden produce.

Section one provides that where horticultural produce is sent to a salesman for sale on commission, he must enter in a book kept for that purpose, the name of the owner or sender, the names of the buyers and the price that has been obtained. And so soon as possible after the sale he must send to the owner or consignor an account containing the following particulars:—

(a) The actual price paid for the produce, and where there is any variation in price, the number, weight or quantity sold at each price.

(b) The commission or charge he makes for selling, and also details of any charges he makes for services connected with the sale, and

(c) The amounts (if any) he has paid or will have to pay for the owner or sender in connection with the sale and details of such payments.

Further, if on any such sale the salesman or someone for him, buys the produce, this fact must be stated in the account.

Section two of the Act provides that the owner or sender of such produce may, within ten days, of the receiving of the account above referred to, require the salesman to produce the records and books in his possession so far as they relate to the sale, and if the salesman refuses to do this he makes himself liable to a fine of twenty pounds, as he does if he fails to comply with the provisions of section one of the Act.

Section three of the Act, which is the "interpretation section," defines horticultural produce as "vegetables, fruit, flowers and plants," and further provides that produce consigned for sale shall be deemed to have been consigned for sale on commission unless, before the sale :—

(a) The salesman has received from the owner or consignor a direction in writing to the contrary, or

(b) The owner or consignor and the salesman have made an agreement in writing to the contrary.

It is also provided by sub-section four of section one that the provisions of the Act are not to apply to a sale of horticultural produce unless the owner or consignor sends to the salesman before the sale an advice note specifying the nature and description of the packages consigned and their contents. *H. S.*

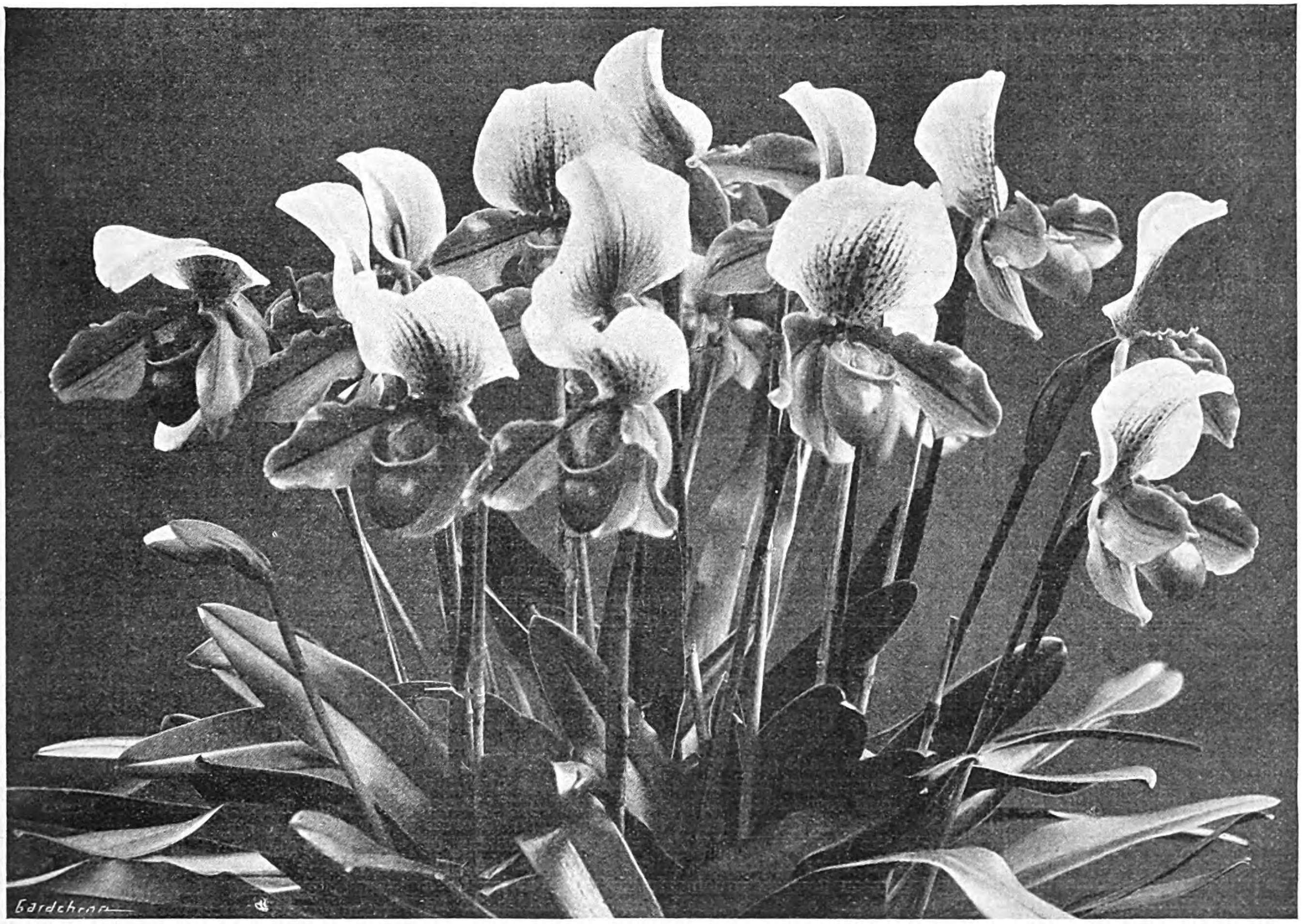


FIG 43.—A FINE PLANT OF CYPRIPEDIUM NITENS LEEANUM VAR. BECKTONIAE,

Awarded a Cultural Commendation by the R.H.S. Orchid Committee on the 11th inst. Shown by Mr. John Evans (see p. 56).

NOTES FROM A WELSH GARDEN.

FEW winter-flowering shrubs can compare with Lithospermum rosmarinifolium. Given fair weather conditions—and it is by no means fastidious in that respect—this lovely Lithospermum will be covered with its enormous sapphire blossoms from November to spring. The colour of these charming flowers is almost exactly that of Gentiana sino-ornata, and the corollas are often over an inch across. This season has dealt kindly with L. rosmarinifolium, for though we have had 10° to 12° of frost on several occasions the plant has not suffered injury.

Rosmarinus prostratus, which grows upon the cliffs of Capri along with the above, is not more hardy here than its compatriot, which is saying much for the latter, since this delightful Rosemary is generally considered robust enough for most places. A more charming rock garden shrub than R. prostratus I have yet to meet. It is, of course, a spring bloomer, but plants in sheltered places are often flecked with pale bright blue even at this date.

Though Coronilla glauca often does admirably near the sea in North Wales, it is apt to be badly damaged by frost in this garden, and my shrubs, though now blooming, are still suffering from the effects of last winter.

On a new piece of wall which needed draping speedily, the foliage of Vitis (Cissus) striata is singularly fresh and cheerful at this season. The small, evergreen leaves are elegant and abundant and of a soft olive-green. Though only planted late last spring, this pleasing little Vine has made nearly five feet of growth, and it looks like doing all that was expected of it, and that quickly.

Though we have had spells of severe weather, Cotoneaster frigida is still carrying a good crop of berries, whilst C. pannosa, which I referred to last month, is even better than it was. C. Simmonsii is another reliable winter-fruiting species. Although a familiar and cheap shrub, it is very beautiful at this season, whether grown as a bush against a wall or as a hedge. Since it produces its berries on the older wood, even along the main stems and branches, clipping or pruning may be carried out without spoiling the prospects of berrying. Being rigid and sparse in habit, C. Simmonsii is first-rate on a wall, as a support for light climbing plants such as Clematises, Mutisia decurrens or Maurandia Barclayana.

Another berrying shrub which is very delightful at this time of year is Gaultheria procumbens, the only member of the genus grown here which retains its fruit during winter. It is an ideal woodland carpeting subject and is equally pretty when it adds its waxen pinky-white blossoms to its foliage of reddish stems and deep green leaves.

The above Gaultheria and Polygala Chamaebuxus var. purpurea I should place very high in any list of lowly, ground-covering shrubs for partially-shaded places. The Milkwort appears to thrive in the driest of soils, though it may take some time to become established, and I know of no better carpeter for the taller Heaths. Here it is rarely out of flower, but as few plants show greater variation in blossom and leaf than this Polygala, growers should choose one of the best forms. P. Vayredae and P. hebeclada (syn. rhodoptera) are very much smaller plants with narrower leaves, and flowers of a brighter purple, and too choice for such carpeting purposes, but there are few tiny shrubs more worthy of a good place in the rock garden.

In part-shaded woodland, Hacquetia (Dondia) Epipactis has begun to show the mustard-yellow of its closely-clustered heads of little flowers before even the Winter Aconites have appeared. But, though so precocious, this plant continues in bloom for a long while, for instead of spending its energies on an outburst of bloom, its flowering is conducted in so cautious and leisurely a manner that it will still be in bloom when spring has arrived.

Growing close-by the foregoing is Cyclamen neapolitanum, the large, rich green, Ivy-shaped, leaves of which are marbled and clouded with emerald and silver. This excellent autumn-flowering species is well worth growing for its leafage alone, for it is one of the most charming objects of the winter garden. C. Coum, here, usually sends up its rounded, fleshy, deep green leaves in the later autumn. These, which in the true plant have no trace of marbling, are soon followed by the dainty flowers in a deep carmine-crimson, and the latter will appear off and on the winter through. C. Coum album is especially dainty and delightful, looking like a Persian Cyclamen in miniature; it was peering forth amid the Ivy of the woodland floor early in January.

A good form of Erica carnea is always a great attraction at this season, and I doubt if there is another winter-flowering shrub of equal merit. It is so hardy, so indifferent to the worst of weather even when in flower, and so amenable to cultivation under widely differing conditions of soil, that it can surely claim to be not only the best of our winter-blooming shrubs but one of the most beautiful and useful subjects ever introduced to gardens. Yet this superb species is not grown to anything like the extent it deserves to be. A very unique variety of E. carnea appeared two or three years ago. It seems to have come to us from a Dutch nursery and is called Vivelli. Very much dwarfer than the type, this curious form has foliage of a deep, sombre green, inclining to bronze at the tips in winter. The flowers, which are freely borne from early January onwards, are a good deal darker in tone than those of any other variety. In some lights they appear to be approaching blood-crimson.

Helichrysum Selago is always more noticeable at this season than at times when there is more blossom about. It is a stiffish, upright bush, of about eight inches, the branches, with their closely-set, scale-like leaves, being suggestive of some Club-moss, or plaited whipcord in green and grey. Our specimen has been growing unprotected in a dry, sunny spot for many years and has never suffered any injury from frost. It occasionally blooms, the small white flowers appearing in summer towards the tips of the branches.

Euphorbia Wulfenii is a very ornamental plant during autumn and winter. It makes a massive clump some three to four feet in height, the stout, pale green stems terminating in bunchy heads of long, narrow leaves whose somewhat glaucous green is suffused with a soft plum-purple, thus making a most attractive shade of colour. The pale yellow, terminal inflorescences appear in early summer and often remain into autumn; they are decorative but not particularly appealing. But as an evergreen bush E. Wulfenii is always worthy of a place in gardens. It does not object to shade, and should have some protecton from harsh, rough winds. *A. T. Johnson, Ro Wen, Conway, N. Wales.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

Shrubs and herbs that flower out-of-doors in midwinter claim and receive special esteem from gardeners and amateurs. Among the hundreds of species—new and old—of Rhododendron that have come to us from the Far East, there are many that surpass R. Nobleanum in brilliance; but as I stood to-day, January 13, before a large bush of this old hybrid, with its hundreds of crimson trusses in glowing contrast with a sombre background of leafless woodland, methought it was a sight as satisfying as may be had in these dark days. The original cross, R. arboreum × R. caucasicum, was made in 1850, and is a truly fine thing of goodly stature. Unluckily, that cross has since been several times repeated, and one is now very apt to be supplied with plants inferior both in size and colour to the true R. Nobleanum, which seems to have become scarce in the trade. Probably R. Nobleanum venustum (not to be confused with the later-flowering R. venustum, syn. Jacksoni, of the same parentage as R. Nobleanum, reversed) is also R. arboreum × R. caucasicum. It bears its bright pink flowers throughout the winter months, and deserves to be more frequently planted than it is.

It is well-nigh fifty years since all other species of Witch Hazel were eclipsed when Maries sent home Hamamelis mollis from China, nearly fifty years ago. It was long before the quality of this plant became generally recognised, nor does one even now meet with it in cultivation as often as one should. I know of no shrub that flowers with more regularity and profusion, let the character of the winter be what it may. A well-furnished plant, ten feet high, with all its sprays set with innumerable golden stars, is a cheering object about the New Year. It may be well to note that nurserymen usually propagate this species by grafts on the far inferior Hamamelis virginiana, which, after the reprehensible manner of stocks, is prone to send up growths of its own to the notable detriment of the scion. Hamamelis mollis still may claim rank as a novelty in British gardens. What a fuss we should make about Jasminum nudiflorum if it were included in the same category!

Of all the score or so of Hellebore species and varieties in cultivation there is none to compare in beauty with the form of H. niger named altifolius. Moreover, its value is much enhanced by its early-flowering habit. The type species is never, or hardly ever, in bloom before the winter solstice; whereas H. n. altifolius generally begins in October and keeps up a succession of fresh flowers until the end of January. I first received this precious plant in 1872—a gift from the late Miss Frances Hope (she died in 1880), in whose garden at Wardie Lodge, on the outskirts of Edinburgh, was great wealth of hardy herbaceous growths long before these had found the favour which they now command. We have now a large quantity of this Hellebore notwithstanding that six or seven years ago it seemed in danger of extinction through a visitation which I take to be our old enemy Botrytis cinerea. This attacked and destroyed the ample foliage, and many plants died. We treated the invalids to a liberal dressing of powdered limestone; and now, whether *post hoc* or *propter hoc*, they have made good recovery, and we have enjoyed throughout midwinter a fine display of white and rose-tinted blossom. I sometimes wonder whether any attempt has been made to cross the vigorous H. foetidus with H. colchicus or H. niger altifolius. If only requires the pale green flowers, which H. foetidus carries to a height of three feet in ample panicles, to be infused with a livelier hue to render it most attractive.

It seems that quiet, stay-at-home folk, who have been in the habit of noting the earliest flowering dates of trees, shrubs and herbs have been taking part, all unconsciously, in the new science termed phenology. Accordingly I append a list showing the earliest dates of some of our winter-flowering plants in this corner of the realm. *Herbert Maxwell, Monreith.*

	1922–3	1923–4	1924–5	1925–6	1926–7
Adonis amurensis	February 5	January 18	—	January 8	January 15
Cornus Mas	January 13	—	January 30	—	—
Crocus vernus	January 14	January 26	December 20	—	—
Cyclamen Coum	January 16	January 20	—	—	January 12
Eranthis hyemalis	December 23	December 31	December 26	January 7	January 12
Daphne Mezereon	January 5	January 22	—	—	December 14
Galanthus nivalis	January 5	January 12	December 20	January 8	January 7
Hamamelis arborea	January 13	December 31	—	January 1	December 31
Hamamelis mollis	December 26	December 23	December 19	December 25	December 18
Iris unguicularis	—	—	—	—	December 25
Leucojum vernum var. carpaticum	January 7	January 2	January 22	January 5	January 10
Rhododendron dauricum	February 1	—	—	—	December 29
Rhododendron × Nobleanum	November 14	—	—	January 7	December 22
Rhododendron lutescens	February 10	—	February 12	February 9	January 12
Erica arborea	December 30	January 22	—	—	—
Erica carnea	January 25	January 26	—	—	—
Berberis japonica	December 24	January 31	December 25	—	January 14

MESEMBRYANTHEMUM.

(Continued from p. 70.)

LITHOPS.

L. bella, N.E. Br., in *The Gardeners' Chronicle* 1922, v. LXXI, p. 80 (Fig. 44). To this species must now be added as a synonym L. Lericheana, Dinter and Schwantes, which I had not seen when I described it in *The Gardeners' Chronicle*, 1926, vol. LXXIX, p. 102, but as I now have plants of L. Lericheana in cultivation, I find it to be identical with the previously described L. bella. A good figure of L. Lericheana was published in the *Zeitschrift f. Sukkulentenkunde*, December, 1925, p. 133, which exactly represents L. bella. I had not seen this figure when my description of L. Lericheana was published in February, 1926, or I should then have quoted it, but now, by the courtesy of Dr. F. Vaupel, the Editor of the work quoted, I am here able to reproduce that figure (Fig. 44) from a photograph of it, for which I am indebted to Mr. C. A. Maass.

L. Mundtii, Tischer, in Moller's *Deutsche Gartner Zeitung*, September 21, 1926, p. 330, with three figures (Fig. 45).—Growths 15–18 lines high, 14–20 lines broad, and 10–18 lines thick, obconic, quite flat on the top, with a transverse fissure about 3 lines deep all across it; surface glabrous, smooth and of a light violaceous tint on the sides, slightly rugose from impressed dendritic markings or branching lines on the top, which is of a light rust colour with the impressed markings of a dark rust colour, and with numerous blackish-grey dots sprinkled among the markings. Calyx 4-lobed. Corolla about 14-18 lines in diameter; petals 30-35, in 2 series, orange-yellow, with the tips reddish on the back. Stamens with white filaments and yellow anthers. Stigmas 6, not exceeding the stamens.

Great Namaqualand: Mundtfarm, near Witvley, in the region of Gobabis, Mund!

This fine species is distinguished at sight from all others that I have seen by the rich rust colour of its flat top. Fig. 45 is here reproduced by the permission of Dr. F. Vaupel, the Editor of *Zeitschrift f. Sukkulentenkunde* by means of a photograph kindly sent to me by Mr. C. A. Maass.

L. pseudotruncatella var. alta, Tischer, in Moller's *Deutsche Gartner-Zeitung*, September 21, 1926, p. 331, with fig. A variety differing from the type by being taller than broad, with the top of the lobes more convex and the markings less distinct. Corolla yellow. Capsule 8-celled.

Great Namaqualand: Farm Hoffnung, collector not stated.

I have not seen this plant, but it is probably the plant Dinter has mentioned in one of his works as being Mesembryanthemum truncatellum growing at Farm Hoffnung, and for which I quoted that locality on his authority under L. pseudotruncatella in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 65, and the localities Jakalswater and Roessing also mentioned there upon Dinter's authority, doubtless also belong to a different species, the Roessing plant probably being L. Ruschiorum, N. E. Br., as I learn from Dr. A. Tischer that the true L. pseudotruncatella is only found in the Aus Mountains and near Windhoek.

RIMARIA, N. E. BR.

Rimaria microsperma, N. E. Br. (Fig. 46).—Stemless or nearly so under natural conditions. Growths solitary or two or perhaps more to a plant. Leaves 1–2 pairs to a growth, closed together or gaping, united at the base, in adult plants 12–13 lines long, 12–14 lines broad and 10 lines thick, half-globose, flat on the face, rounded on the back, obscurely keeled at the apical part and rounded or minutely apiculate at the apex; surface glabrous, very minutely-granulate under a lens, reddish-grey on dove colour, indistinctly dotted. Flower solitary, terminal. Pedicel 7–10 lines long, compressed, densely "silky-fulvous." Calyx subequally 6-lobed; lobes 3½ to 5 lines long, 3-3½ lines broad, obtuse, three with very narrow, membranous margins "silky-fulvous." Corolla about 1¾ inch in diameter; petals numerous, free, in 2 series, about 8 lines long and ¾-line broad, cuneately linear, obtuse, incurved at the tips, yellow tinged with saffron at the apex above, fulvous on the back tinged with rosy-orange at the tips. Stamens about 4 lines long, erect in columnar mass, rich golden-yellow; filaments (probably the inner only) hairy at the base. Stigmas 7–9, divergent, 3½ lines long, papillate on the face, yellow. Ovary slightly convex on the top. Capsule 7–11-celled. Seeds about ⅙-line long, dull reddish-brown.

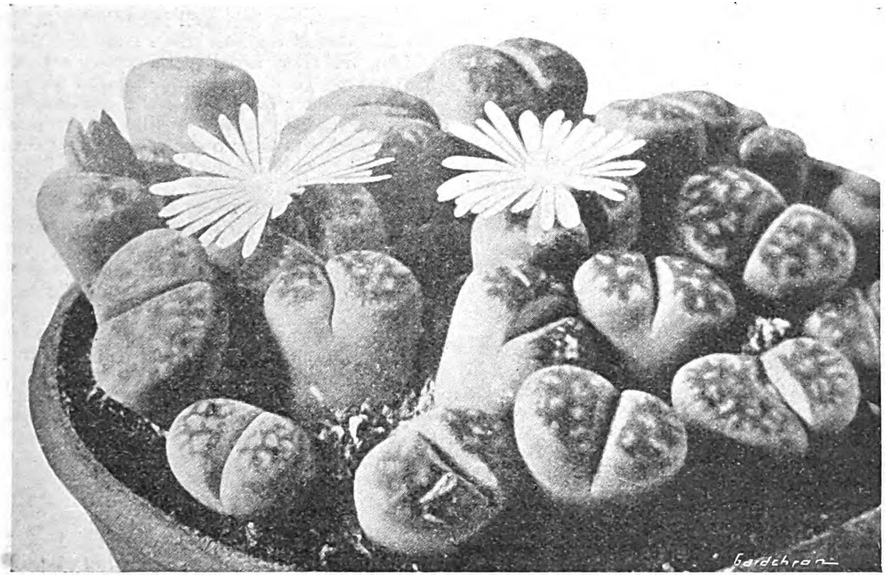


FIG. 44.—LITHOPS BELLA, N. E. BR. (SYN. L. LERICHEANA, DINTER).
Natural size; reproduced by permission from the *Zeitschrift f. Sukkulentenkunde.*

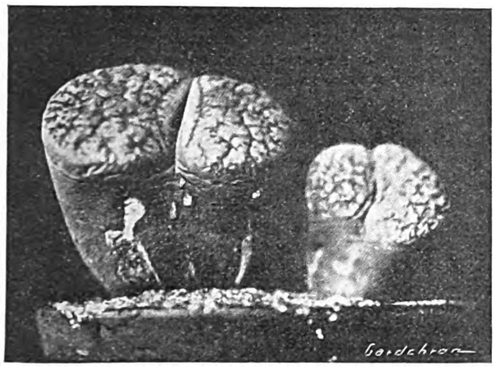


FIG. 45.—LITHOPS MUNDTII, TISCHER.
Natural size; reproduced by permission from the *Zeitschrift f. Sukkulentenkunde.*

Dinteranthus microspermus, Schwantes in *Zeitschrift f. Sukkulentenkunde*, vol. II, p. 184, name only, and Mesembryanthemum microspermum, Dinter and Derenberg, in the same volume, p. 264, with description and figure.

Great Namaqualand; growing among white quartz stones about 12 miles south of Warmbad, Dinter.

I am indebted to Dr. F. Vaupel, the Editor of the *Zeitschrift f. Sukkulentenkunde*, for permission to reproduce from the latter work by means of a photograph sent to me by Mr. C. A. Maass, the accompanying illustration (Fig. 46) of this remarkable species, which is evidently closely allied to R. Pole Evansii, but differs from that species by its dotted leaves and differently coloured flowers, it also comes from a locality some hundreds of miles distant.

In the *Zeitschrift f. Sukkulentenkunde*, vol. II, p. 173, Mr. G. Schwantes has created a number of new genera belonging to this group of plants, and among them, on p. 184, is the genus Dinteranthus, Schwantes, under which the above plant is placed, together with Rimaria Pole Evansii, N. E. Br., and Argyroderma Margaretae, N. E. Br. That is to say, Dinteranthus is a name founded upon a combination of three species which I have placed under two genera already established, and therefore is entirely inadmissible and only adds unnecessary names to the synonymy. No mention is made of characters by which Dinteranthus is distinguishable from Rimaria, and those given for Dinteranthus accord with those of Rimaria.

Of the other genera made by Mr. Schwantes I have not yet made any study, but judging from the species enumerated under them, some will undoubtedly be acknowledged as good genera, and these I note are mostly founded upon species of which (when studying all the available material in the Kew and other Herbaria three years ago in search of generic characters) I had not seen specimens or had insufficient material for examination and so left for further study as material became available. But with reference to several of the genera proposed, I feel doubtful if Mr. Schwantes has examined and dissected many of the species he enumerates under the genera he has founded, for some of the species mentioned I recognise as belonging to genera I have already characterised and others I think are doubtfully separable from Mesembryanthemum. Unfortunately the type species upon which he founds each genus is not mentioned, but I hope Mr. Schwantes will clearly point out which species is the type of each of his genera so that future confusion may be avoided. *N. E. Brown.*

(*To be continued*).

HOME CORRESPONDENCE

Mistleto.—This evergreen subject (evergreen in two ways) is referred to at some length in an article in the December issue of *The Meccano Magazine*, by W. Coles-Finch, under the title of "Holly and Mistletoe." The writer states: "It is a parasite, but unlike the few parasitic plants common to Great Britain, it is evergreen, both in summer and winter. From this we may safely conclude that it is not solely a parasitic plant, and, in fact, can be grown in pots." This assertion is certainly news to many of us. I have had the opportunity of studying Mistleto practically all my life. I remember, many years ago, a fairly large and old bush Apple that was much infected with Mistleto; it was worthless and ancient and was grubbed up. In its place a vigorous new bush Apple was planted. About the fifth year after planting, Mistleto appeared, the single shoot coming out of smooth bark, with no sign that it started in the generally accepted way from a seed becoming fixed to the bark. I have seen strings of glutinous Mistleto seeds in the Apple trees here after they have passed through the bodies of birds. They were like pearl necklaces as they glistened in the winter sunshine. In a few days a seed, if it is not again picked up by a bird, or mice, or blown away, will fix itself in no uncertain manner to the Apple bark and take on the same drab grey colour. When the sap rises and the host begins to get active, a tiny green shoot will appear; the "root" is anchored in the cambium layer, and the Mistleto plant is starting business. To come back to the particular Apple tree I mentioned, after a few years several good bunches of Mistleto were in full vigour upon it. The owner tried the experiment of cutting away all the small Apple wood and leaving a "Mistleto tree." This was in July. Within a month the tree was dry and dead, the Mistleto having quickly robbed it of life. The fact is, the Mistleto cannot, or will not, manufacture its own food. In winter all growth, that is, active growth, ceases, but the wood and eyes keep fresh; when active growth begins the crude sap rises, and when transformed in the young leaves of the host into elaborated sap, passes down the cambium layer as perfect food for all growth,

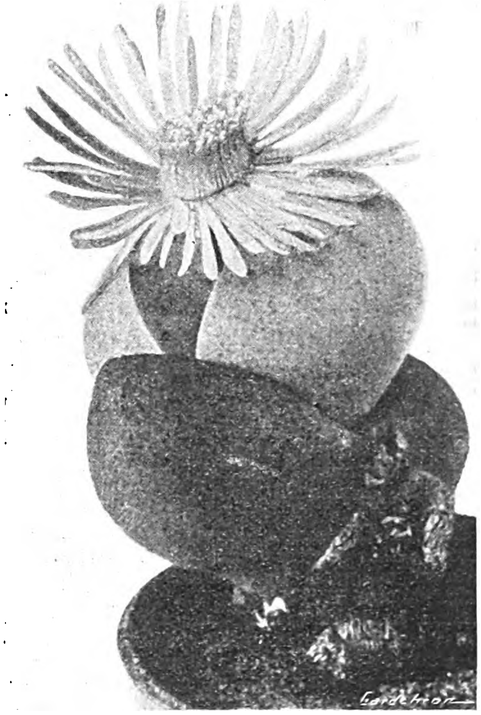


FIG. 46.—RIMARIA MICROSPERMA, N. E. BR.
Natural size; reproduced by permission from the *Zeitschrift f. Sukkulentenkunde.*

and here the Mistleto feeds on it. I have seen the green, thin root passing along the branches, after carefully cutting the stem open. When Mistleto is established in a tree its roots will form knots or eyes and push out shoots at different points. I have cut an Apple branch, with Mistleto attached, clean away, and the following summer a new shoot has appeared from the severed root close to the cut in the Apple wood. I am carefully watching our 150 new Apple trees planted since the war, as I am anxious to discover the appearance of the parasite. There is some ground for a line of thought that there is contamination through our soil. A curious circumstance this season is that blackbirds and thrushes almost stripped our Mistleto of berries quite early in December, though the weather had been open and the berries were unripe. To-day, January 3, I notice both the male and female Mistleto is almost in bloom. This is about the first flower the bees work on. Concerning the article referred to, I have known of Apple trees in pots carrying Mistleto, but a Mistleto plant growing alone in a pot on its own roots is a novelty! *G. W. Stacey, Chorleywood Cedars.*

James I. and Mulberry Trees.—The following extract may interest your readers as showing how keen James I was on encouraging the planting of Mulberry trees, and may serve to improve our estimate of that not altogether prepossessing monarch. It is much to be regretted that the planting of these useful and beautiful trees should have almost ceased during the nineteenth century, so that, though aged specimens of Morus nigra are fairly frequent in English gardens, very few are to be found in their prime. Let us hope that the twentieth century will make amends for the *laches* of its predecessors. In a letter from Sir William Tate to the Deputy Lieutenants of Northampton, dated about January, 1607, occurs this passage:—"His Majesty's pleasure is that every Knight, gentleman or men of ability should take a convenient proportion of Mulberry trees, to the price of three farthings apiece or six shillings a hundred; which trees, to the number of ten thousand, have been brought to the town of Northampton, according to His Majesty's pleasure; which we have thought fit to commend unto you, and the rather for that His Majesty will esteem it as an acceptable testimony of an extraordinary affection towards his Royal person in all such who do nourish and plant them." *Hist. MSS. Com.*, (Buccleugh MSS.), vol. III, p. 117. *Vicary Gibbs, Aldenham House.*

Jasminum nudiflorum.—I never remember to have seen this Jasmine so full of flower in mid-winter as it is this year. The fine growing weather experienced last summer in combination with the unusual mildness of the present winter, accounts for the lavish display of bloom which this old hardy climber is now affording. In this district old-established specimens of it are one mass of bloom, the clear, bright yellow of which is thrown into bold relief when associated with such evergreen climbers as the Ivy. There can be no more worthy inmate of a garden than this Jasmine, and no home should be without Jasminum nudiflorum on its walls. *James A. Paice, Mill Hill.*

Biennial Cropping of Apples.—In his second note on this subject (p. 55), Mr. Grigor Roy informs us how, by drastic treatment, he induced two Apple trees to abandon their natural habit of biennial cropping. He does not prove, however, that he obtained his result by thinning the fruit, for he also thinned out the branches and spurs. I consider that the thinning of the spurs had most to do with the result. This would have the same effect as thinning the bloom, and would prevent the trees from excessive blooming in one season, and give them a chance to form fruit buds for the next year's crop. Thinning the fruit brings relief to the tree too late to do this. The regular bearing of fruit trees in orchard houses, to which Mr. Grigor Roy refers, is, I consider, due to the fact that feeding, watering and atmospheric conditions are much more under control than they are in the open. *Market Grower.*

FRUIT REGISTER.

APPLE HERRING'S PIPPIN.

Those who are planting Apples this season and wish to try a few of the newer varieties should include Herring's Pippin, which is also known as Herring's Seedling. This comparatively new dessert Apple is of excellent quality, although somewhat large for the dessert table, and fruits grown on standard trees would probably be of the best size for the table. The flesh is pale yellow, very tender and has a brisk, aromatic flavour. The variety gained the R.H.S. Award of Merit on October 5, 1920, when exhibited by Messrs. J. R. Pearson and Sons. Mr. A. H. Pearson spoke very highly of Herring's Pippin on that occasion and recommended it strongly for planting.

The side of the fruit exposed to the sun is very deeply coloured over a rich yellow ground; specimens grown further south, exhibited by Messrs. J. Cheal and Sons at the same meeting, were much more highly coloured than those to which the award was made. It is a late Apple, in season from October to November. *T.*

PLUM DIAMOND.

Regarding the notes on Diamond Plum in *Gard. Chron.*, p. 71, the variety is known in the midlands as Black Diamond. It is not by any means a heavy cropper. Its worst point is its susceptibility to aphis attacks. It is always the first sort in a considerable collection to show the foliage curling up with 'smother-fly," and is often seriously crippled by it. These drawbacks are, no doubt, responsible for decreasing cultivation of what I consider our finest culinary Plum. *Charles E. Pearson, V.M.H.*

VEGETABLE GARDEN.

ONIONS.

The Onion is one of the most important crops of the vegetable garden, and whether grown to exhibition size or merely for pickling or ordinary use should always be given the best cultivation.

If not already done, the ground the crop is to occupy should be double dug or, even better, trenched three spits deep. Leave the surface as rough as possible and dust it liberally with soot and wood-ash. In the middle of March the plot should be dug over with the fork and the soil broken as finely as possible. To obtain very large Onions sow the seeds thinly in boxes of light, friable compost, consisting of two parts loam, one part leaf-soil and one part old hot-bed or Mushroom-bed manure, with a good dash of sand to render it porous. Pass the materials through a half-inch sieve. Well crock the boxes or pans and place some rough material over the drainage to facilitate good drainage. Three parts fill the receptacles, which ever kind is used, with the soil, and make it firm, then sift a little soil on the surface through a finer sieve. Sow the seeds thinly and evenly, cover them with a fine layer of soil, press them down and water them with a fine-rosed can. Germinate the seeds in a temperature of 60°, and cover them with glass and paper to conserve the moisture. Germination will soon take place, and so soon as the seedlings appear remove the covering and expose them to all the light available. The best place in which to grow the seedlings for a time is a shelf in a house with a temperature of about 55°, and so soon as they are large enough to handle, prick them off into boxes containing similar compost as before. Place the plants about two inches apart and give them tepid water of the same temperature as the house. Grow them in an early vinery or Peach house that has been started, where they can have gentle warmth and also fresh air to keep them sturdy. Water the soil very carefully, spray the plants overhead on bright days, and stir the surface soil occasionally with a pointed stick.

When the plants have made good growth and space is required for other things, the boxes should be transferred to a heated pit where the plants may be given more air when the weather is favourable. Eventually they may be placed in a cold frame, where they may remain until planting out time arrives. The lights should be removed on warm, bright days, and a little air admitted all through the night to harden the plants. At this stage the young Onions will require more water, which should be applied in the mornings.

Planting time may vary according to the locality, but the middle of April is a suitable date.

When the ground is given its final forking about the end of March, give it another dusting of soot, working this well into the soil. Before planting tread the soil when it is dry to make it firm, and then neatly rake it over with a small iron rake. In planting, use boards nine inches wide to walk on, and rake the bed level as the work proceeds. Place a line down one side of the bed, lift the young plants very carefully from the boxes and set them in deep holes that will accommodate the long roots. On no account cramp the roots in too small a space; make a deep hole so that the long roots can go down well. The base of the plant should be about a quarter-of-an-inch below the surface, or just deep enough to enable the seedling to stand upright. A space of twelve inches from plant to plant in the rows will be sufficient, and fifteen inches between the rows, as this will allow plenty of room for using the Dutch hoe.

Water each row as it is completed, and when the bed is planted remove any loose soil around the edges to give it a neat and tidy appearance.

Where a large bed is planted, it is well to leave a pathway two feet wide between every eight or nine rows to make easy access for syringing, watering, weeding, etc. For a week or so, the young plants should be sprayed overhead twice daily, but after that spraying once in the afternoon will suffice. So soon as the plants are well established, mulch the bed with sifted manure from an old Mushroom-bed. Where it can be obtained, drainings from the farmyard, diluted with water, are very beneficial to the crop, and an occasional dusting of some approved artificial manure around each bulb will help to produce fine specimens.

If mildew appears dust the plants around their bases with lime and if this does not check it, pull out affected plants and burn them otherwise the disease will spread.

Keep the bed free from weeds and stir the surface occasionally with the Dutch hoe taking care not to damage the base of the bulbs. As the plants increase in size, loose skins should be removed, and if any of the tops fall over before they are ripe they should be supported with a small stake. When it can be seen that the bulbs have done growing, the tops may be bent down; this may be done two rows at a time placing the tops in between the rows. As the bulbs become well-ripened and are ready for harvesting lift each one with a fork, allowing the roots to remain and turning the base of the bulb towards the sun to thoroughly ripen that part. Turn the bulbs and eventually cut off the tops; tie the neck of each Onion with matting. Each bulb should be handled carefully to prevent bruising it.

An excellent place in which to ripen Onions completely is a cool vinery or Peach-house; after a week or so in these houses they may be removed to the storeroom and will keep sound until the following spring.

Onions for ordinary use may be raised by sowing the seeds on a half-spent hot-bed, such as has been used for forcing early Lettuces or Asparagus. Sow the seeds thinly in drills and water them well. Close the frame until the seedlings appear, then admit plenty of air. So soon as the young plants are strong enough, lift them carefully and plant them in ground that has been well prepared previously, placing them about four or five inches apart. Water them and afterwards keep the bed clean by hoeing; an occasional dusting with old soot during showery weather will benefit the plants. A large crop is obtained by this method, which is much better and more economical in regard to seeds than sowing out-of-doors, whilst it does away with thinning; the bulbs are also far less liable to be attacked by the Onion fly or mildew. All Onions should be grown in the sunniest and most open position of the garden. *R. W. Thatcher, Carlton Park Gardens, Market Harborough.*

CELERIAC.

Celeriac, or, as it is sometimes called, Turnip-rooted Celery, is probably not grown in this country to the extent it deserves to be. On the continent (especially in France and Germany) it has been extensively cultivated for many years. The edible part is the swollen root which forms a "bulb" very similar to the Turnip in appearance, the leaf-stalks being rejected.

When well-grown and properly cooked, Celeriac is a delicious winter vegetable, and those who like boiled Celery will find this dish to their liking. It may also be used in place of Celery for flavouring purposes.

To be successful with this vegetable the ground should have been cultivated deeply and manured generously. Seeds should be sown in gentle heat, about the first fortnight in March, and when the seedlings are large enough, pricked out into fairly rich soil in boxes or frames in exactly the same manner as Celery. After the plants are well-hardened, they should be planted out early in June. At this point the procedure differs somewhat to that of Celery. Instead of planting being done in trenches, Celeriac should be planted in shallow drills about four inches deep, according to the nature of the soil, but on heavy land planting on the flat is recommended.

The rows should be from eighteen to twenty-four inches apart, allowing about fifteen to eighteen inches from plant to plant, according to the variety and the method of cropping adopted; sometimes an intercrop is grown that can be cleared before the main crop requires the space. Any lateral growths should be removed before planting, and great care taken not to plant deeply.

Water should be given copiously whenever needed; the drills (when adopted) simplifying this operation. Little further attention will be necessary beyond occasional hoeing and the removal of any suckers which may appear on the sides of the plant from time to time.

A sharp watch must be maintained for the appearance of the Celery fly. Frequent dustings with soot will do much to keep this pest in check, besides having a beneficial effect upon the plants.

There are two methods of keeping this crop during the winter; one is to lift the plants in November so soon as growth is completed, trimming the large, outside leaves, retaining only a few at the crown, and storing the roots in sand in a cool shed; and the other being to leave the plants in the ground and draw a little soil over the "bulbs" covering them with protecting material during very frosty periods.

There is not a large range of varieties to choose from, but in these considerable difference exists, as may be seen from the accompanying illustration (Fig. 47), the plant on the right being both large in leaf and coarse-rooted, whereas the other has a neat, clean root and not an undue proportion of leaves. In a trial of this vegetable conducted at Wisley last year, the following varieties proved outstanding:—Giant Ball and Snowball—these were continental stock; and Close Planting (the variety on the left of the photograph) which came from a British source. *J. Wilson, Wisley.*

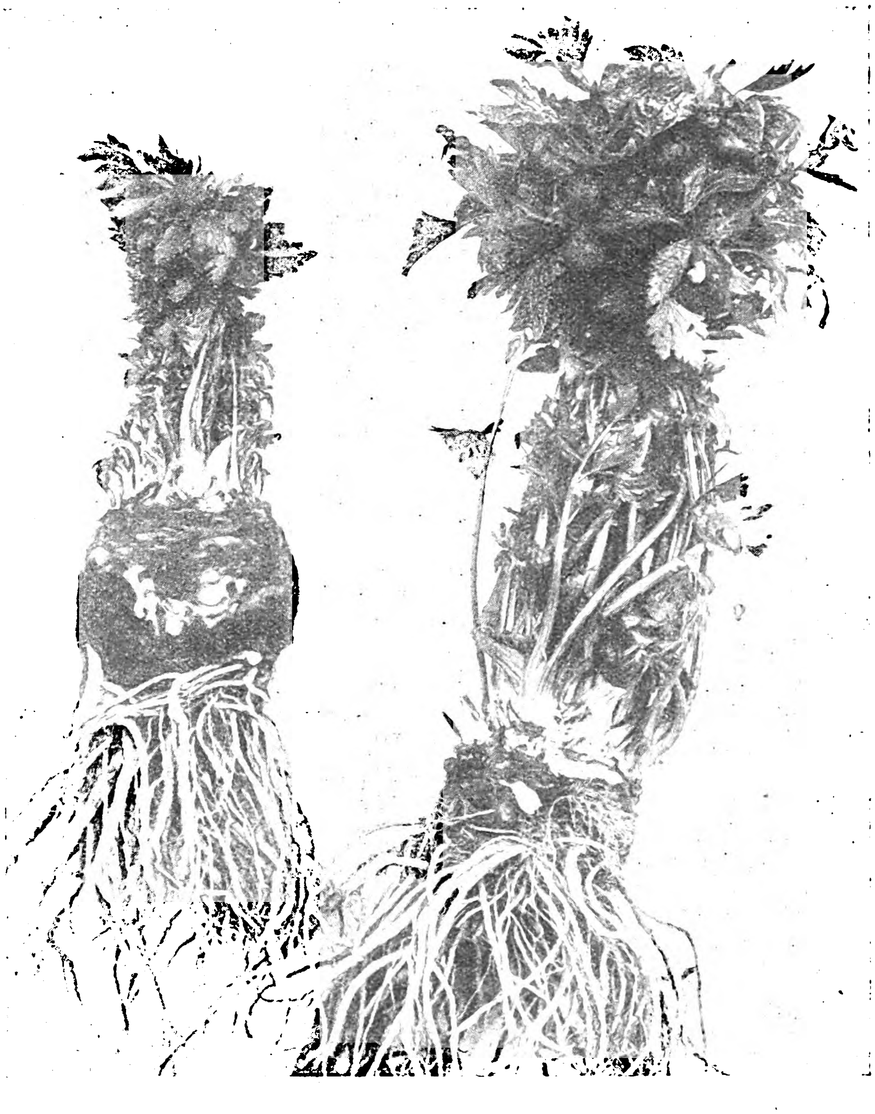


FIG. 47.—CELERIAC CLOSE PLANTING (LEFT), GIANT PRAGUE (RIGHT).

PUBLIC PARKS AND GARDENS.

At a special meeting of the Parks Committee of the Glasgow Corporation, held on Tuesday, the 4th inst., a letter was read from Mr. Edward Matthews, intimating his resignation as Director of City Parks. It was agreed to accept the resignation, and a sub-committee was appointed to consider the vacancy. Mr. Matthews was appointed Assistant Director on the death of Mr. James O'Rourke, six-and-a-half years ago, and it was only in 1923 that he was appointed Director on the retirement of the late Mr. James Whitton.

Lampeter Town Council proposes to apply to the Ministry of Health for sanction to borrow £500 for acquiring and developing the Bryn field as a park and recreation ground.

SOCIETIES.

ROYAL CALEDONIAN HORTICULTURAL.

The annual general meeting of this Society was held in Dowell's Rooms, Edinburgh, on the 12th inst., a week later than usual. Mr. W. J. Thomson presided over a good attendance of the members.

The financial statement for the past year showed a credit balance of £60 18s. 4d. The following office-bearers were elected: Hon. President, the Earl of Stair; President, Mr. W. J. Thomson, and Vice-President, Mr. David King. Eight nominations were made for three vacancies on the Council, and on a vote the following were successful: Messrs. John Scott, Westerlea; George F. Anderson, Whittingehame and Alexander Innes, Dean Cemetery.

In the annual report the Council stated that having regard to the financial position and the fact that the five shilling membership involved a loss to the Society, it was proposed to increase the annual subscription to seven shillings and sixpence. It was also announced that a legacy of £400 had been bequeathed by the late Mr. Fraser on the understanding that the interest on that sum was to be allocated in prizes for alpines at the spring show.

After some criticism by Mr. A. D. Richardson, the report was adopted.

A motion to the effect that the meetings in future be held in the afternoon instead of the evening was defeated by a large majority.

The policy of the Board of Agriculture for Scotland was subjected to severe criticism in a discussion which followed. A motion was put by Mr. Richardson to the effect that the Council resume negotiations with the Board of Agriculture with reference to putting into operation the scheme submitted to the Board in 1923 for the suppression of plant pests, and also with reference to the publication of the statistics of the fruit survey organised by the Society which was also then submitted to the Board.

In support of his motion Mr. Richardson said the country was overrun with big bud, reversion and mildew on Black Currants, and if reversion goes on as at present Black Currants would soon be a thing of the past. Millions of pounds were being lost every year by diseases and insect pests and nothing was being done to stop it.

Mr. Stewart, in seconding, remarked that the lady mycologist who had been appointed by the Board was not getting a fair chance, and he thought the Society should press the Board to get an entymologist appointed. He understood that a fruit survey was now being taken up at the different colleges.

Mr. Robert Fife, as a member of the deputation which approached the Board, said he was wholly at one with the object of the motion. The Board of Agriculture had treated the Society shabbily. They left the book unpublished and were now doing the work all over again, but he was satisfied that it would not be well done, for they got things better done by private enterprise than under officialdom. The Board had spent thousands of pounds on the plant-breeding station and they had not even a Potato to show for it. He ventured to suggest that if a premium had been offered, say, for an improved type of Midlothian Early, a whole host of breeders in the country would have produced what was desired by this time.

Mr. Scarlett paid testimony to the good work done by Mrs. Alcock, and he not only supported the motion to its fullest extent, but claimed for the Society a certain amount of supervision of the survey work.

After further discussion the motion was adopted unanimously.

It was agreed to send congratulations to Mr. Harrow, who had been distinguished by the award of the Victoria Medal of Honour in Horticulture and to Sir James Watt, Carlisle, who had been head of Messrs. Little and Ballantyne for fifty years, on his knighthood.

NATIONAL ROSE.

Annual Meeting.

The annual meeting of the National Rose Society was held at Caxton Hall, Westminster, on January 18. The President, Mr. C. C. Williamson, presided, and the attendance numbered about 120. After the minutes of the last annual meeting had been read and signed, the President submitted the Annual Report of the Council for 1926. The following are the chief items in the Report :

The Society has during the past year continued to make steady progress, the number of new members being 2,048. The total membership is now over 14,105.

During the course of the year, several important additions have been made to the Library, and many members have availed themselves of the privileges of having Rose books sent on loan by post.

The Council will welcome gifts of useful and suitable books from members of the Society. It is desired to extend the Library so that it may contain all standard books on botany, hybridisation and the history and development of the Rose.

The Society's slides continue to be in great demand, so much so that it has become necessary to provide an additional set which will, it is hoped, be ready in the autumn.

Six shows were held during the past year. The Spring Show was again held in the Horticultural Hall, on Friday, April 23, and was honoured with a visit by H.R.H. Princess Mary. The exhibits were of a very high order, and a source of much pleasure to a large number of visitors. Some inconvenience was caused by overcrowding, but the Council is pleased to report that arrangements have now been made which will obviate any cause of complaint in future.

The Great Summer Show was held in the Royal Botanic Gardens, Regent's Park, on Friday and Saturday, July 2 and 3, and was visited by Her Most Gracious Majesty the Queen. The show will remain a memorable one for the remarkable number of exhibits staged by nurserymen.

The show of new Roses was held in the Horticultural Hall on Friday, July 23, but owing to the weather conditions which had prevailed for some days prior to the show, the exhibits were below the usual standard.

The Provincial Show at Leeds was held on Tuesday and Wednesday, July 13 and 14. The sub-tropical weather conditions which prevailed prior to, and on the day of the show, rather spoilt what might have been a fine show.

The Provincial show, which was held at Southport on August 25, 26 and 27 was, perhaps, the most successful provincial show the Society has ever held. The ideal weather conditions which prevailed before and during the show enabled exhibitors to stage the Roses at their best. The Southport Floral Committee spared no trouble or expense in their efforts and earned the gratitude of the exhibitors and the appreciation of the large number of visitors.

The Autumn Show was held in the Horticultural Hall on Friday and Saturday, September 10 and 11. Last year the experiment was tried of holding this show in tents at the Botanic Gardens, but owing to the uncertainty of the weather it was felt that too great a risk was being taken, and it was decided to return to the old conditions and hold the show under cover. As usual, this display of autumn Roses was a very great success and attracted a very large number of visitors.

The financial position of the Society is a source of much gratification. The total receipts for the year, including the balance of £70 16s. 7d. brought forward from last year, amounted to £8,853 12s. 9d., and the total payments for the same period, including the sum of £1,109 9s. 1d., which has been placed to the credit of the Reserve Fund, amount to £8,811 1s. 3d.

The Council has, with great regret, to record the loss during the year of three very old and tried friends of the Society. Mr. Samuel McGredy, who was one of the Society's oldest members, and widely known for the numerous new varieties of Roses raised by him. The Rev. J. H. Pemberton, who was the oldest member of the Society, and a Past President, and well-known to all exhibitors. Mr. E. B. Lindsell, another Past-President, and one who for many years was the Champion Amateur Rose Grower.

In conclusion, the Council desires to record its acknowledgment of the special and valuable services which have been rendered to the Society during the past year by Miss Willmott, F.L.S., one of the Society's Vice-Patronesses.

The President made a few comments on the Report, and referred to the great loss the Society had sustained in the deaths of Mr. McGredy, the Rev. Joseph Pemberton, Mr. E. B. Lindsell and the Rev. Page-Roberts.

Mr. Cowley raised the question of a trial garden and was informed that the matter was under the consideration of the Council. Mr. H. Oppenheimer seconded the adoption of the Report, and it was carried without further comment.

The Hon. Treasurer, Mr. S. A. R. Preston-Hillary, next submitted the financial statement, which was passed without discussion. The balance sheet showed that subscriptions amounted to £7,185 7s. 0d., the proceeds of shows, £702 4s. 6d., advertisements £308 13s. 4d., and interest on invested funds, £349 4s. 2d., the total income amounting to £8,853 12s. 9d. Payments included £3,046 17s. 5d. for publications; postages and sundry expenses, £79 15s. 6d. ; honorarium to the Hon.Secretary, £350 ; salaries, £566 10s. 2d. ; expenses of shows, £924 2s. 2d, and prizes, including medals and plate, £1,104 8s. 0d. The sum of £1,109 9s. 1d. had been invested during the year, leaving a balance in hand of £42 11s. 6d.

The meeting next proceeded to consider the result of the ballot sheet for the members of the Council, there being thirty-nine nominations for thirty-six seats. All the old members were re-elected with the exception of Messrs. C. S. Gordon-Clark, Stuart-Hogg and Dr. Sauer, and their places were filled by the election of Messrs. W. A. Harvey, Eric Holroyd, J. W. Jones and Dr. R. C. Turnbull, the nomination of Mr. John N. Hart as a Vice-president causing a further vacancy. Mr. C. C. Williamson having completed his two years of office, Mr. H. R. Darlington was appointed President and Mr. Darlington's place as Deputy-President was taken by Mr. Arthur Johnson.

At this stage of the proceedings, after a vote of thanks to the retiring President, Mr. Darlington presented Mr. Williamson with the Dean Hole Memorial Medal.

A vote of thanks to the officers and Council, proposed by Mr. W. Harvey and seconded by Mr. J. W. Jones, was accorded with enthusiasm, and the meeting concluded with a hearty vote of thanks to the Chairman.

Following the business proceedings, members were provided with tea and entertained to an excellent programme of music.

ROYAL HORTICULTURAL.

January 25.—A very bright and attractive exhibition was provided on this occasion. Forced bulbous flowers contributed colour, and fragrance, Orchids arrested attention, while Cyclamens, Acacias, early hardy flowers and shrubs added to the interest of the meeting. An exhibition of unusual interest was the superb collection of Citrus fruits exhibited by **Cecil Hanbury** Esq. (Supt. Mr. S. W. McLeod Braggins), La Mortola, Ventimiglia, to which a Gold Medal was awarded. Several interesting novelties were submitted.

Orchid Committee.

Present : Sir Jeremiah Colman, Bt. (in the chair), Mr. Gurney Wilson (Hon. Sec.), Hon. H. D. Maclaren, Mr. Fred J. Hanbury, Mr. C. J. Lucas, Mr. H. H. Smith, Mr. A. Dye, Mr. Chas. H. Curtis, Mr. A. McBean, Mr. J. E. Shill, Mr. Fred K. Sander, Mr. H. T. Pitt, Mr. T. Armstrong and Mr. John C. Cowan.

First Class Certificates.

Cattleya John Henry, Dell Park var. (C. Astron × C. Lady Rowena).—The original C. John Henry was exhibited on October 5, 1926, when it gained an Award of Merit. The new variety is an advance on the type and has exquisitely beautiful flowers of large size and fine form, white with lemon-yellow in the throat. Shown by Baron **Bruno Schroder** (gr. Mr. J. E. Shill), Dell Park, Egham.

Odontonia Nubia var. Renown (Miltonia Charlesworthii × Odontoglossum Doreen).—A handsome Orchid bearing three fine flowers, with deep, velvety crimson sepals and petals, and a large lip heavily marked with carmine on a whitish ground, a small red mask and golden disk. Shown by Messrs. **Charlesworth and Co.**

Award of Merit.

Cymbidium Atalanta, Brockhurst var. (erythrostylum × Alexanderi).—A graceful hybrid, the plant exhibited carrying thirteen flowers. The colour is pale apple-green with a pleasing salmon-pink suffusion ; the lip is marked and tipped with deep brown. Shown by **Fred J. Hanbury**, Esq. (gr. Mr. Farnes), Brockhurst, East Grinstead.

Groups.

A most interesting exhibit from **H. T. Pitt**, Esq. (gr. Mr. Thurgood), attracted a great deal of attention. Epidendrum Endresio-Wallisii was conspicuously good, and represented by numerous flowering plants. The old Ada aurantiaca was also shown, together with Cymbidium Alexanderi, C. Traceyanum, the handsome Lycaste Balliae superba, Cypripedium Grace, Pitt's var., and many fine forms of popular, large-flowered Cypripediums and coloured Odontoglossums.

Sir **Jeremiah Colman** (gr. Mr. J. Collier), showed Masdevallia polystricta and M. tovaensis, both finely flowered, Cynorchis compacta, the brilliant Sophro-Laelio-Cattleya Saxa, Gatton Park var., the small, white-flowered Dendrobium Chalmersii, the yellowish Sophronitis grandiflora var. Lowii, some Cymbidiums and the now rarely seen Masdevallia deorsa.

The handsome group of Orchids put up by Messrs. **Cowan and Co.** commanded attention by reason of the numerous examples of Oncidium splendidum and O. Cavendishianum it contained, the golden flowers of the large spikes being unusually attractive. In addition, the display included Cattleya Woltersiana, Cypripedium Curtisii exquisitum—one of the deepest-coloured forms we have seen of this species—Cymbidiums, and a fine array of the up-to-date varieties of bold-flowered Cypripediums.

Ten glorious plants formed the exhibit of Messrs. **Stuart Low and Co** ; these were Brasso-Cattleya Penelope, with four flowers; B.-C. Nestor, three big blooms ; B.-C. Mirabilis, with a pair of yellow flowers ; Cattleya Enid alba and C. Maggie Raphael alba, with three and four flowers respectively, Laelio-Cattleya Locarno, Odontioda Hanmerae, O. Wilsonii, Dendrobium Pallens and the golden D. chessingtonense.

Messrs. **Charlesworth and Co.**'s contribution contained lovely spikes of Odontoglossum armainvillierense var. xanthotes, a white O. crispum and O. eximium xanthotes. An outstanding plant was Odontonia Nubia var. Renown, with superb crimson-brown colouring. Other good things were Miltonia Wm. Pitt, a grand form of Odontoglossum Tityus, Dendrobium nobile nobilius, and the quaint little Bulbophyllum Dayanum.

Messrs. **Sanders** showed the beautiful Brasso-Cattleya Albion, the showy Cymbidium Ernest Sander and the handsome Odontoglossum Vulximium, with highly-coloured, large blooms. Messrs. **Sutton Bros.** were modest exhibitors and showed Cypripediums in variety, Oncidium splendidum and Laelio-Cattleya Marathon. Mr. A. J. **Keeling** sent a few large-flowered Cypripediums and Cymbidiums.

Floral Committee.

Present : Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. R. Findlay, Mrs. Helen Lindsay Smith, Lady Beatrix Stanley, Mr. Wm. Howe, Mr. J. M. Bridgeford, Mr. D. Ingamells, Mr. W. A. Bilney, Mr. Hugh Dickson, Mr. E. R. Janes, Mr. Geo. Churcher, Mr. A. E. Vasey, Mr. Jas. B. Riding, Mr. J. T. West, Mr. D. B. Crane, Mr. W. P. Thomson, Mr. G. W. Leak and Mr. Charles E. Pearson.

Section B.—Mr. Gerald V. E. Loder (in the chair), Mr. W. J. Bean, Mr. G. Reuthe, Mr. George Harrow, Mr. Reginald Cory, Mr. A. Bedford, Mr. L. R. Russell, Mr. E. H. Wilding, Mr. T. Hay, Hon. Henry McLaren, Mr. Charles T. Musgrave, Mr. C. J. Lucas and Mr. R. C. Notcutt.

Awards of Merit.

Acacia Baileyana.—This is probably the best known of the Mimosas and is generally considered to be the hardiest of all the species. It was described by Baron Von Mueller in the *Transactions of the Royal Society of Victoria* so long ago as 1887, and a good illustration appeared in *The Gardeners' Chronicle* of January 13, 1894. Large quantities of cut sprays are sent to Covent Garden and other markets from the Riviera in the early spring when the sprays of delicate grey leaves and spikes of yellow flowers brighten florists' shops and street vendors' stalls. Shown by Commendatore Cecil Hanbury, M.P. (gr. Mr. S. W. M. Braggins), La Mortola, Ventimiglia, Italy.

Acacia Hanburyana.—A seedling Acacia was discovered by Mr. Joseph Benbow when he was in charge of the La Mortola Gardens, growing in near proximity to bushes of A. Baileyana and A. podalyriaefolia, and there seems little doubt but that A. Hanburyana is the result of a natural cross between these two species. It makes a tree fully twenty feet high. The silvery phyllodes bear short leaflets similar to those of A. Baileyana and the round clusters of bright canary-yellow flowers are borne on pendulous spikes.

Aloe ciliaris—This showy South African succulent plant is more generally known as A. ciliata, though this is not its correct name. The plant has linear, spreading, finely serrate, green leaves and the flowers are of a brilliant coral-red colour.

Cotyledon (*Echeveria*) *multicaulis.* — An attractive, dwarf, compact plant was shown. The ovate, fleshy green leaves were attractively bronzed at the tips and the solitary flowers were a deep reddish colour. All the above were shown by Commendatore Cecil Hanbury.

Tetratheca thymifolia.—A well-grown plant of this tender little Australian shrub was shown. As the specific name implies the neat foliage suggests that of the Thyme. In the relatively dull light of the hall the pale purple flowers were only a little more than half open, but they were sufficiently so to disclose the small, carmine blotch at the base of each petal. Shown by Sir William Lawrence, Bt. (gr. Mr. Everatt), Burford, Dorking.

Other Novelties.

Three large, oval, green fruits of Araujia (Physianthus) sericifera were shown by W. C. Hadden, Esq., Underway, West Porlock, Somerset. In addition to the species which received award in the interesting collection of Citrus fruits, Commendatore Cecil Hanbury sent robust spikes of Aloe arborescens var. natalensis, flowering sprays of Acacia podalyriaefolia, and the golden-yellow Bignonia venusta. Mr. Braggins brought for Signor Aicardi, Villa Minerva, Poggis, San Remo, Italy, seven vases of perpetual Carnations, grown in the open. These illustrated excellent cultivation. Messrs. Robert Veitch and Son displayed vases of Hamamelis arborea, H. japonica rubra, H. mollis and Mahonia japonica var. Bealei.

Groups.

An excellent collection of greenhouse Cyclamen was staged by Messrs. Blackmore and Langdon. This filled an entire length of tabling and was composed of splendidly-grown plants set out in their various shades of colour. Many distinct tones were shown, such as Scarlet King, Salmon King, Crimson, Giant White and a desirable type of Cyclamen grandiflora. Cyclamens of merit were also shown by Mr. J. W. Forsyth. In this collection the frilled type was especially good, though all of the "Caledonia Strain" illustrated first-rate cultivation.

Greenhouse Primulas of considerable decorative value were again shown by Messrs. J. Carter and Co. On the present occasion a larger display was made, and the round baskets of distinct colour varieties of Primula sinensis with large flowers, the stellata varieties, and P. malacoides made an attractive display.

An attractive exhibit of spring bulbs was made by Messrs. Sutton and Sons. This was composed largely of Hyacinths, of which many good varieties of the large-flowered and the multiflora types were represented. Narcissi included Paper White, Early Surprise, a pretty Barrii variety, and Golden Spur and Cervantes, Trumpet Daffodils. The many Tulips included bright flowers of Rosa Précoce, Brilliant Star, and the Duc van Thol varieties. There were also showy gsoups of Iris reticulata, Freesias and Lily-of-the-Valley.

A pretty group of forced Prunus triloba fl. pl., Hamamelis arborea, Aphelandra aurantiaca, Pycnostachys Dawei, Azalea indica varieties, and well-fruited, little Orange bushes was made by Messrs. L. R. Russell, Ltd.

Carnations were shown in their accustomed quality by Messrs. Allwood Bros., Mr. C. Engelmann and Messrs. Stuart Low and Co. The last-named also had an attractive collection of pot plants of Acacia Baileyana, Hippeastrums, Eranthemum pulchellum and other useful greenhouse plants.

Cut spikes of Hippeastrum aulicum were included in an excellent collection of St. Brigid Anemones by Messrs. R. Gill and Son, who also set out sprays of many uncommon Conifers, including Pinus Montezumae, P. patula, P. Ayacahuite, Abies bracteata, A. firma and several Podocarpuses.

Interesting little rock gardens were made and planted by several exhibitors. Messrs. Wm. Cutbush and Son had various suitable shrubs including a shapely specimen of Pieris floribunda, and Pernettya mucronata. They also planted groups of Iris Histrio and I. alata. Crocus Sieberi, C. Cloth of Gold, Galanthus Elwesii, Primula Juliana, P. Wanda, Saxifraga longifolia, and S. Burnatii were effectively planted by Messrs. Waterer, Sons and Crisp.

Messrs. Barr and Sons had an interesting exhibit of Crocus Susianus, various Primroses, chiefly with blue and rich yellow flowers; Christmas Roses, Eranthis ciliaris and other flowers, with a background of Eleagnus pungens aurea variegata and Cotoneaster rugosa Henryi. They also staged excellent pots of Roman Hyacinths. A neat little rock garden was made by Messrs. Sheppards and another by Messrs. Tucker, who displayed large breadths of Saxifraga kestoniensis, S. kewensis and S. tridentina. Messrs. J. Cheal and Sons exhibited Primula Wanda, Eranthis ciliaris, Crocus Sieberi and other alpines.

A lovely collection of Conifers, such as are valued for the rock garden, was arranged by Mr. G. G. Whitelegg. In addition to the sorts shown on previous occasions, he had excellent specimens of Podocarpus, of several species, Picea nigra Doumettii, and P. pungens Kosteri procumbens. Mr. J. Klinkert showed topiary specimens.

There were various exhibits of garden sundries, the chief of which were various useful baskets, coconut-fibre mats, and joinery, made by the blinded soldiers at St. Dunstans; a greenhouse and garden frames shown by Messrs. Boulton and Paul; garden tools, by Messrs. Thos. Gunn and Sons; knives from Messrs. Joseph Rogers and Sons and Mr. J. Pinches' excellent metal labels.

Many artists contributed paintings of flowers and garden scenes, and Mr. James Macdonald brought over one hundred herbarium specimens of dried grasses of great interest.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (Chairman), Mr. W. J. Lobjoit, Mr. J. Cheal, Mr. P. C. M. Veitch, Mr. G. F. Tinley, Mr. T. Pateman, Mr. E. Beckett, Mr. W. F. Giles, Mr. A. Poupart, Mr. J. C. Allgrove, Mr. E. A. Laxton, Mr. H. V. Taylor, Mr. W. H. Divers, Mr. H. Prince, Mr. E. Neal and Mr. A. N. Rawes.

Two new Apples were submitted to the Committee and both were recommended for trial at Wisley. The one, named Opalescent, was brought by Mr. P. C. M. Veitch, of Exeter; it is an American variety with a very sweet, juicy flesh, and quite good for a December Apple, but nothing exceptional in flavour. It is of the oblong type, as classified by Bunyard in his *Handbook of Fruits*, with a pale yellow skin, covered with pale red on the side next to the sun. The stalk is set in a deep, narrow cavity and is about half-an-inch long. The other variety is of the conical type, with a broad base, somewhat after the Worcester Pearmain type. This variety, which is named Connoisseur, was shown by Mr. W. Tayler. This Apple is also very juicy and sweet, and, perhaps, a little better-flavoured than Opalescent. The skin is yellowish, covered almost entirely with pale crimson, which appears in darker patches at intervals.

Col. A. Bates, of Basingstoke, Hampshire (gr. Mr. W. R. Beesley), showed a dish of Oranges, taken from a tree in a greenhouse in which a temperature of about 50° is maintained, bearing altogether some five hundred fruits. There was nothing remarkable in the quality.

An exceptionally fine display of Citrus fruits was shown by Cecil Hanbury, Esq., from his gardens at La Mortola, Ventimiglia, Italy (Supt. Mr. Braggins). The collection included fifty-one distinct variteies. The exhibit was arranged very attractively on a black velvet ground and relieved with vases of Acacia, Euphorbia (Poinsettia) and Cotoneaster sprays covered with berries. The fruits, many of which were attached to branches with foliage, were in splendid condition. They were brought direct from La Mortola on Sunday last by Mr. Braggins who has met with disappointment on two previous occasions in sending them over by ordinary rail and boat, owing to delays. The Committee recommended a Gold Medal for the collection and a Cultural Commendation to Mr. Braggins. All kinds of Citrus fruits were represented from the big specimens of Citrus Medica as large as Mangolds to the smaller Lemons and Mandarin Oranges. Grape Fruit was shown in clusters of five to eight resembling bunches of huge Grapes, hence, doubtless, the name Grape Fruit. Some of the flowers of the Oranges shown are used locally for the making of perfume and the Bitter Orange for the making of marmalade; in some cases the fruits themselves are used for perfume-making by scratching the peel when perfume similar to that of Eau de Cologne is obtained. One of the best flavoured of the Oranges was Citrus nobilis (Mandarin) these fresh fruits being far superior to those which are picked green and sent to market for sale in our shops. Citrus Aurantium var. sinensis is also a very finely flavoured Orange.

BRITISH FLORISTS' FEDERATION.

The annual general meeting of members of the British Florists' Association was held at the Connaught Rooms, Great Queen Street, W.C., on Friday, January 21. Mr. D. Ingamells, the President, occupied the chair, and was supported by Mr. W. E. Wallace, Mr. Alfred W. White, past presidents, and numerous members of committee. The attendance was moderate, many members being absent through illness (influenza).

The Report of the Committee and the Statement of Accounts for 1926 were submitted. The former contained references to the fine exhibit of market plants and flowers arranged by the Federation at the Royal Horticultural Society's Hall in November and to which a Gold Medal was awarded. The plants and flowers were contributed by Messrs. P. Ladds, M. Hutchings, Lowe and Shawyer, Jas. Sweet and Son, and Geo. Monro, Ltd., and skilfully and artistically displayed by Mr. H. Jolis, to all of whom the Committee offered thanks for their generous help. It appeared that the Federation frustrated the endeavours of the Transitaires to impose higher charges upon flowers imported from France, and to establish a carriage forward system, a system which would have meant the flooding of the market with flowers of low quality. Now that the Chamber of Horticulture has ceased to function, the Committee decided that the Federation should continue as a separate body and not join the Horticultural Trades' Association under the proposed scheme of co-ordination. The principal business before the Committee towards the end of the year was the opposition to the Bill before Parliament for the removal of Covent Garden Market. Other special references in the Report were to the International Commercial Horticultural Conference in Paris; to a lecture on the use of Poison Gas for the Control of Insect Pests, given to the members, by Mr. Theodore Parker; and to the losses sustained by the deaths of Mr. Fred W. Cory and Mr. Thos. Windle.

The accounts showed a turnover of £269 3s. 10d.

leaving a balance in hand of £86 14s. 4d. The Federation's exhibit at Westminster involved an expenditure of £26 13s. 6d., and was sold for £43 18s. 6d. Income from subscriptons amounted to £220 15s. 0d., and it was of interest to notice that some members had paid forgotten subscriptions for so far back as 1923.

The President briefly reviewed the work of the year in moving the adoption of the Report and Accounts, and the motion was carried. Following a vote of thanks to the Committee and officers for services rendered, Mr. Ingamells proposed the election of Mr. H. T. Mason, of Hampton Hill, as President for 1927. This motion was carried unanimously and with applause, and Mr. Mason at once filled the Presidential chair and made it his first duty to thank the retiring President for his services and congratulate him on his successful year of office.

The retiring members of Committee were re-elected. Mr. Ingamells was appointed to fill the vacancy arising by the elevation of Mr. Mason, while Mr. D. Sweet was elected to the place rendered vacant by the death of Mr. T. Windle.

Several new members having been elected, the meeting adopted a resolution giving the Committee full powers to oppose the Bill for the removal of Covent Garden Market, and promising loyal financial support. It was stated that standholders in the market would be assessed in view of the commitmants necessary to put forward a strong opposition.

This concluded the general business. Tea was served, and in the unavoidable absence of Mr. F. W. Ladds, the President opened an discussion on "Gluts of Flowers and How to Prevent Them." A very brisk discussion ensued from which the chief points urged as preventive measures were: closer co-operation between growers and salesmen so that the latter might be duly notified of impending gluts; cutting all flowers just before they were ready, thus giving better value to the ultimate purchaser, instead of holding them over in the hope of a rise in price; the training of better educated young folks as retail florists; and more enterprise on the part of retailers in the offer of "special lines," when supplies of certain flowers were in excess of the demand. It was pointed out that in the absence of weather control gluts could not be entirely prevented, but growers did much to create gluts by trebling their cultivation of any kind or variety that happened to obtain good prices in the previous season.

The President thanked those who had assisted in the discussion, and was, in turn, thanked for presiding.

Later in the evening many members and friends, including ladies, dined together at the Connaught Rooms under the presidency of Mr. H. T. Mason. A very enjoyable evening was spent, a capital musical programme provided and the tables were charmingly decorated by Mr. Harry Miles with Carnations, Daffodils, Tulips and Roses sent by Mr. C. Engelmann, Mr. H. T. Mason, Mr. W. E. Wallace and Mr. Alfred W. White.

BANFFSHIRE HORTICULTURAL.

A HIGHLY satisfactory condition of affairs within this Society was reported by the Secretary. Mr. John Mann, at the annual meeting. The income for the year was £451 5s. 11d., being £55 0s. 11d. less than the previous year. This was accounted for by the decrease on the admission charges. On the expenditure side the Committee had increased the prize-money, which now stood at £279 10s. 0d. The actual cash balance on the annual show was £57 7s. 11d., but to that had to be added capital expenditure amounting to £35 5s. 9d., so that in all the credit balance was £92 17s. 4d. The total assets of the Society now amount to £770 4s. 4d., with a balance in hand of £461 7s. 4d.

Provost Gordon, who presided, moved the adoption of the report in a eulogistic speech, Baillie Davidson seconded, and it was carried unanimously. The Provost was again appointed President and Mr. Mann was re-elected Secretary. It was agreed that the annual show be held on Wednesday, August 17.

Obituary.

Charles A. Bayford.—It is with profound regret we learn, through Mr. W. Crump, of the death of Mr. C. A. Bayford, for the past twenty years gardener to C. W. Dyson Perrins, Esq., Davenham, Malvern. Davenham is one of the best-kept gardens in the midlands and has been much enlarged and improved under Mr. Bayford's care. Mr. Bayford was only fifty-nine years of age. He was highly esteemed in the Malvern district and was an enthusiastic member of the Worcester Auxiliary of the Gardeners' Royal Benevolent Institution. A portrait and appreciation of Mr. C. A. Bayford appeared in *The Gardeners' Chronicle* of February 27, 1926.

Walter Ramsay Elliot.—We deeply regret to record the death of Mr. Walter Ramsay Elliot, which took place at Cambridge on the 9th inst. Born at Edinburgh, sixty-two years ago, he came of a gardening family, his father being gardener to the late Lord Armstrong, at Jesmond Dene, Newcastle-on-Tyne. He was apprenticed with Messrs. William Fell and Co., of Hexham, and after serving in the various departments in connection with this firm, he went to Hereford, to take charge of the nurseries of the late Mr. John Cranston, which ultimately became the King's Acre Nurseries, Limited. From there he went to Messrs. Dicksons, Limited, Chester, and eventually took charge of the nursery which this firm then had at Dolgelly. During his service with this firm, it was he who actually found the original plant of Cupressus macrocarpa lutea. From there he went to the old firm of Messrs. William Paul and Sons, Waltham Cross, and after a few years of experience there was appointed manager of the Feltham branch of Messrs. James Veitch and Sons, Ltd. Leaving there in 1902, he became general outdoor manager to Messrs. Wood and Ingram, Huntingdon, and remained with the present proprietor, Mr. Henry Perkins, until his death. With his varied experience, he was a fine all-round nurseryman, a first-class grower, and had a wonderful knowledge of trees and shrubs of all kinds and their propagation. He also took keen interest in seed-growing, and during the last quarter of a century, in cattle, horses, and in the general agricultural side of the firm's activities. He had been in failing health for some months, and in the end succumbed rather suddenly to heart failure. He had two sons, both of whom were killed in the War, and one daughter who was found drowned about a year ago. His wife survives him.

Emil Goericke.—We regret to learn of the death on December 15 last, of Emil Goericke, a nurseryman of Niemberg, near Halle, Germany. He was born in 1864, and after serving his apprenticeship in Cöthen, he had positions in turn in establishments in Erfurt, Frankfurt, Strassburg, Nancy, Rheims, Ghent and Brussels. He was for a year in a responsible position in the celebrated firm of Lambert, at Trier. In 1895 he founded his own nursery at Niemberg, and previous to the War he specialised in Asters, his Hohenzollern Aster being well-known; he was also an expert in heating, and in 1925 perfected a new type of hot-water boiler.

Alexander Macdonald.—We regret to announce the death of Mr. Alexander Macdonald, late schoolmaster, Durris, near Aberdeen. Born at Forgue seventy-one years ago, he had, outside the sphere of professional scientists, few equals. On his retirement from scholastic duties in 1921, he became prominently associated with the Deeside Field Club, Aberdeen Natural History Society and other kindred organisations. He was joint editor of the *Deeside Field*, to which he contributed many valuable and learned articles; was assistant editor during the closing years of his retirement of the *Aberdeen University Review*, and in his lifetime published many pamphlets on the subjects he loved so well. It has been declared that but for his duties as a teacher he would in respect of the humblest forms of life have been a Scottish Faber. The funeral took place on Tuesday, the 18th inst., in the churchyard of his beloved Durris, in the valley of the Royal Dee, and was largely attended. Mr. Macdonald is survived by a widow and family of three sons and two daughters.

James Taylor.—On Sunday, January 16, Mr. James Taylor passed away, after a painful illness, at the age of seventy-three. Deceased was well-known in gardening circles, more especially in connection with Orchids, as he represented Messrs. Sanders of St. Albans for some twenty years, chiefly in the midland counties. Prior to joining Messrs. Sanders, he was head gardener to the Duchess of Montrose, at Sefton Lodge, Newmarket. Eventually he represented Messrs. Mansell and Hatcher, of Rawdon, Yorks, for several years. The illness and death of his wife and his own poor state of health had rendered him unable to work for some time past.

TRADE NOTE.

BY a coincidence, the figures of patent applications in H.M. Patent Office for the year 1926 are almost identical with those of the previous year, and this may be considered very satisfactory in view of the many difficulties consequent upon the general strike, the miners' strike, and the unemployment caused thereby. Messrs. Rayner and Co., the well-known London patent agents, inform us that in 1926 inventions relating to gardening and horticulture in general have been well maintained, as will have been observed by the regular contributions published in connection with patents, etc. A noticeable feature in the year's record is the large number of U.S. Americans and Germans who are obtaining patents for their inventions in this country. Mr. Rayner is certain that if no trade disturbances had occurred the figures for the year would have been much higher, and looks forward to important developments in the present year for inventions which have been kept in abeyance.

ANSWERS TO CORRESPONDENTS.

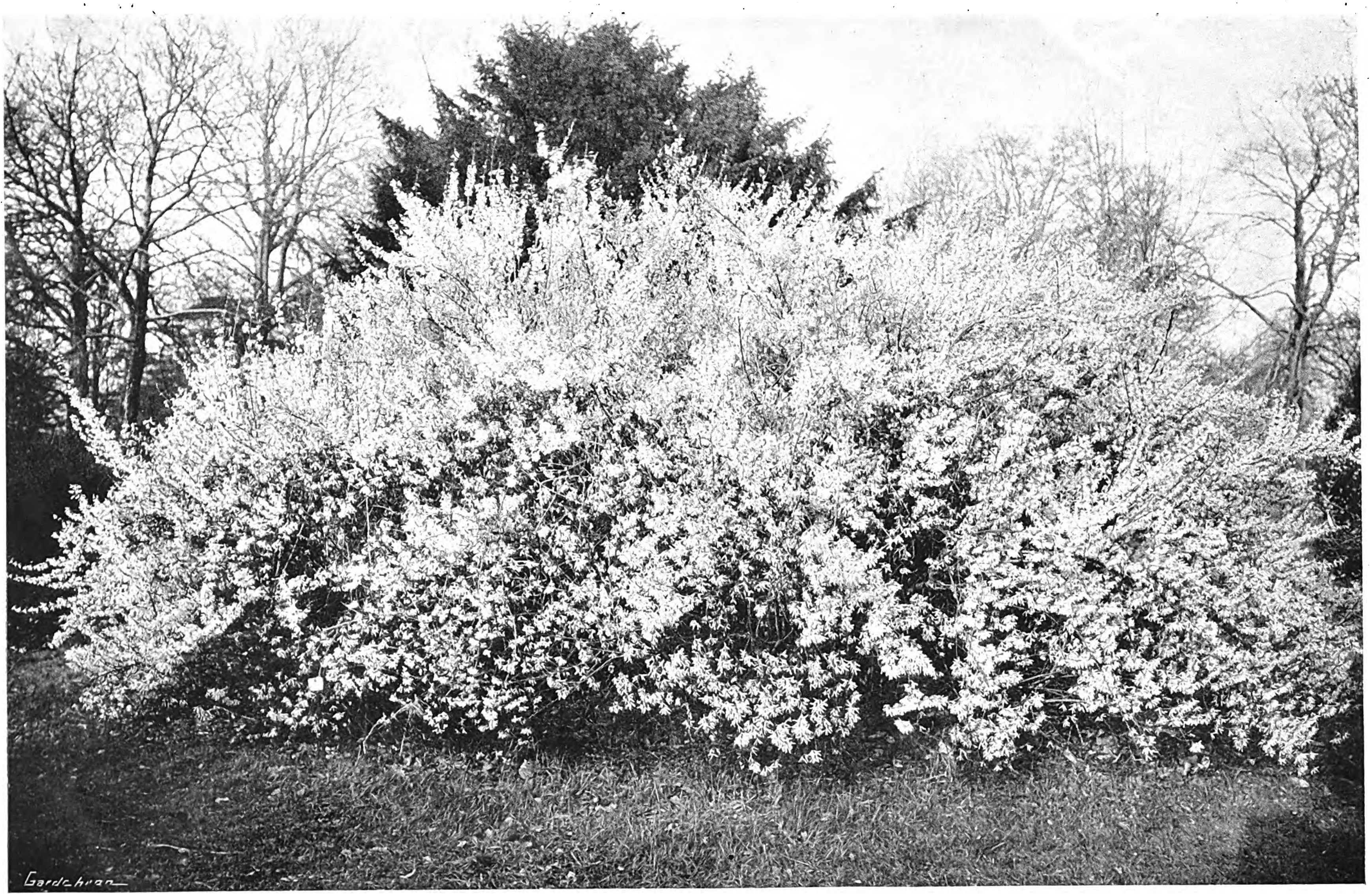
BOOKS.—*V. R. G., Hartford.* Your best method of ascertaining the value of the books you mention is to enquire of a firm of booksellers who specialise in gardening works, such as Messrs. Wheldon and Wesley, 2, Arthur Street, New Oxford Street, W.C.2.

CARNATIONS DISEASED.—*W. H. D.* The disease on your Carnations is caused by a fungus which appears to be new to this country. We understand that a description of the disease will appear in a forthcoming number of the *Journal* of the South-Eastern Agricultural College, Wye, Kent, which you should apply for. In the meanwhile, all the affected plants should be destroyed by burning.

NAMES OF PLANTS.—*S. I.* 1, Leucophyta Brownii (syn. Calocephalus Brownii); 2, Veronica speciosa var. Veitchii; 3, Veronica species, probably a variety or hybrid of V. salicifolia; 4, Begonia species; 5, Senecio laxifolius. *W. C.* Cornus capitata. *Old Reader.* 1, Thymus Chamaedrys var. lanuginosus; 2, Lycium chinense; 3, Cotoneaster glaucophylla; 4, Pyracantha augustifolia. *D. G.* 1, Viburnum Opulus; 2, Gaultheria sp.; cannot name without flower; 3, Asplenium Ceterach; 4, Erythrina sp.

PRESERVING INSECT PESTS.—*J. H. S.* The common insect pests belong to many different groups of insects, each requiring different methods for preserving them. In addition, the larval and adult stages require different treatment. We advise you to obtain *The Insect Hunter's Companion*, by the Rev. J. Greene, a small and inexpensive book. There is also a very valuable Appendix by L. N. Staniland which should be included; these authorities will supply you with all the information you need.

Communications Received. — J. O. H. (Thanks for 9d. for R.G.O.F. Box).—S. J. R.—A. T. H.—C. E. P.—M. T.—Sussex.—H. W.—C. D.—G. N. H.—A. T. J.—F. H. W.—F. M. L.—A. A.—E. G. F.—H. M. N. W.—W. P.—J. B. A.—E. A. B.—G. R.—M. S. H.—J. R.—J. H. W.



FORSYTHIA INTERMEDIA AT THE ROYAL GARDENS, KEW.

THE
Gardeners' Chronicle

No. 2093.—*SATURDAY, FEBRUARY* 5, 1927.

CONTENTS.

Alpine garden—
  Escallonia rubra pygmae 96
  Helichrysum frigidum 96
  Primula pubescens 96
Apiary notes 102
Award of Garden Merit 92
Azaleas, notes on Japanese 97
Books, notices of—
  A Forester's Diary... 101
  Dahlias for the Garden 100
  Forcing by Hydrocyanic Acid ... 101
Chrysanthemum exhibit, a wonderful... 104
Daffodils, the promiscuous production of new 100
Florists' flowers—
  Carnations in America 96
  Chrysanthemum Louisa Pockett ... 96
  New varieties of perpetual-flowering Carnations ... 96
Flower garden—
  Verbena venosa ... 96
Fruit, modern methods of marketing ... 91
Foreign correspondence—
  Hardy Lilies in America 103
  Soya Beans joined in pairs 103
"Gardeners' Chronicle" seventy - five years ago 93
Garden, the fertility of the 91
Glasgow Parks, new Director of 92
Hardy flower border—
  Inula Helenium ... 96
Indoor plants—
  Aglaonema costatum 95
  Anopterus glandulosus 95
Melilotus species ... 104
Melon, a long-keeping 104
Nomocharis 98
Obituary—
  Udale, James ... 106
Orchid notes and gleanings—
  Thrips on Orchid seedlings ... 96
Plants, hardiness in ... 104
Plants new or noteworthy—
  Globularia majoricensis 100
Potato imports, foreign 92
Rainfall at Tirley Garth, Tarporley ... 93
Rose garden—
  Roses in Canada ... 96
Royal Horticultural Society 91
Scotland, the storm in 92
Societies—
  British Carnation ... 105
  Gardeners' Royal Benevolent Institution 105
  Glasgow and West of Scotland ... 104
  Manchester and N. of England Orchid 106
  Marlow and District Chrysanthemum 104
  Reading and District Gardeners' ... 104
Taylor, Mr. H. V. ... 92
Vegetable garden—
  Failure with Celery 103
  Seed Potatos ... 103
Vines, the utility of pot 102
Week's work, the ... 94
Wisley, developments at 101

ILLUSTRATIONS.

Acacia Hanburyana 95
Aloe ciliaris 99
Azalea, the home of the Yashi, showing a fine specimen of Stuartia Pseudo-camellia 97
Cotyledon multicaulis 93
Odontonia Nubia var. Renown 98
Primulas exhibited by Messrs. James Carter and Co.... 101
Taylor, Mr. H. V., portrait of 92

SUPPLEMENT PLATE.
Forsythia intermedia.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39·0°.

ACTUAL TEMPERATURE—
***The Gardeners' Chronicle* Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 2, 10 a.m. Bar. 30·1. Temp. 40°. Weather, Sunny.**

The Fertility of the Garden.
II.

HUMUS, which comes from the decaying remains of once living things, is, in a sense, the arbiter of soil fertility. Without it, although a soil may be made to grow crops, it will be a continual and unsuccessful struggle to maintain any high degree of fertility. With a good supply of humus constantly augmented, the fertility of the garden will remain and increase. How to supply and augment the humus is, of course, a difficult question to answer. Where farmyard manure is available in large quantities the problem does not arise. But there are few gardeners who are so fortunate as to be able to secure adequate supplies of stable manure. The scarcity may be supplied to some extent by converting all garden refuse into organic manure, and as our readers know, this may be done by means of "Adco"—a preparation of micro-organisms which set going decay and so order it that the final product is humus. Green manuring—the digging in of catch crops, Mustard, Vetches, blue Lupins and the like—may also be practised. A third means employed largely by market growers is to incorporate with the soil organic refuse—wool waste and the like—which material, gradually undergoing decay in the soil, may help to improve its texture beside yielding up slowly a certain amount of plant food. The second aspect of manuring, the supply of "plant foods," is fortunately easier to satisfy than ever it was. The plants' requirements of nitrogen, potash and phosphates may be readily met by the use of appropriate artificial fertilizers, and it is certain that a more extended use of artificial fertilizers in private gardens would result in larger crops. Needless to say, it has to be remembered that artificial manures do not add to the real estate of the soil—that is, do not make a permanent addition to its fertility. They are like a current account. As a sum is paid into the bank and drawn out again, so the sulphate of ammonia or nitrate of soda added to the soil is drawn out by the plant, leaving the soil at best no worse off than it was before. It has been realised recently that the standard quantities of nitrogenous, potassic and phosphatic manures, which are usually recommended, may not, after all, represent the last word in scientific manuring; and that it may be possible to obtain larger yields by increasing the quantities. Nevertheless, as gardeners know, caution has to be exercised in the use of artificials, for an excess of a soluble fertilizer may do much harm. No one should however, be deterred by this fact from a regular use of artificial manures. The main purpose, however, of these articles, the first of which appeared in our issue of January 22, is to suggest that every young gardener should realise what all good gardeners understand, namely, that soil management is one of the most important of the gardeners' arts. That the soil—a complex of physical, chemical and biological factors—is constantly undergoing change. That it tends to wear out and requires repair, and that to keep it in full fertility requires vigilant observation and a knowledge of the ways in which soil fertility may be enhanced or impaired. Once the gardener has learned these principles he will find little difficulty in applying them and the result will be larger crops, and, in the long run, less work. For maintenance is always cheaper than repairs. Anyone who can make a soil fertile can keep it fertile.

Royal Horticultural Society.—The membership of the Royal Horticultural Society increased by over 1,400 in 1926, and the year generally was a very prosperous one, so far as the Society is concerned. As set forth in the Report for 1926, issued in the *Book of Arrangements* for 1927, the total income amounted to £56,503 16s. 9d.: the assets include investments, £46,851 13s. 2d., and a general reserve fund of £68,000. One of the outstanding events of the past twelve months was the laying of the foundation stone of the new hall, which the Council expects to have available for use in the summer of 1928. The need for a much larger hall than the present one shows the extraordinary success of the Society in the last decade; those who remember the fortnightly meetings and exhibitions in the old Drill Hall will realise the marvellous progress the Society has made since then. We are glad to see that the Council is resuming the conferences on special flowers which some few years ago were a feature of the Society's work and attended with great success. The decision is to hold a conference on Primulas in 1928, and a conference on Rhododendrons in 1929. The long-overdue catalogue of the Lindley Library, which now contains over 12,000 volumes, is nearly complete, and will be in the hands of the printers shortly. Pritzel's *Iconum Botanicarum Index* has also reached the stage when publication can be considered, and the Council hopes to be able to make a definite announcement during the present year. The Society spent the very considerable sum of £12,000 on Wisley during 1926; new features have been added to the gardens, some of which are referred to by our correspondent on page 101. Apparently the trials are now to be included under the scientific work of the gardens, and we learn that Dr. Darbishire has continued his investigations in green manuring; Mr. G. F. Wilson has compared the efficacy of sprays against insect pests; Mr. Dowson has studied the disease of Sclerotinia Narcissi and investigated another species of Sclerotinia which attacks Antirrhinums and other garden plants, beside continuing his investigation of Carnation stem-rot and a disease of China Asters and Calceolarias. The President, Lord Lambourne, has made a gift of his portrait to the Council, which was presented to him by the Fellows of the Society and friends. In view of the immense and steady growth of the Society and its widened sphere of activity, the Council has decided to amend the Charters of 1809, 1860 and 1899, together with the bye-laws. The special shows to be held during 1927 include the London Daffodil Show, the Spring Show at Chelsea, the Amateurs' Show on June 28, the Vegetable Show in September, the Autumn Show at Holland Park Hall, a special Fruit Show, which will be held on one day only this year and not on two as heretofore, and a special Show of Soft Fruits and Stone Fruits on July 19 and August 3, respectively. The annual meeting will be held on Tuesday, February 8, at 3 p.m.; the agenda includes a resolution by Mr. Robert Fife that "the special trials of Roses now being conducted at Wisley, be abandoned."

Our Supplement Plate.—The Supplementary Illustration presented with the present issue depicts a clump of Forsythia intermedia in flower at the Royal Botanic Gardens, Kew. F. intermedia is supposed to be a hybrid between S. suspensa and F. viridissima and flowers before the latter parent and immediately after F. suspensa. The golden-yellow flowers of this shrub, produced in clusters, provide colour in the garden when few other subjects are in bloom, hence they are doubly welcome, and they remain attractive for a considerable time. Some of the Forsythias are of a rambling habit and adapted for training against walls or furnishing supports to arbors, pergolas, etc., but the one illustrated has a somewhat bushy habit and is more suited to grouping on lawns. The best effect is obtained by allowing the long, arching growths to remain; therefore the plant requires little or no pruning.

Modern Methods of Marketing Fruit.—Mr. H. V. Taylor, Commissioner of Horticulture, delivered an address on "Modern Methods of Marketing Fruit," before the members of the Farmers' Club on the 31st ult. Mr. Taylor stated that our present markets are now within easy reach of orchards abroad, and not only are we receiving supplies of hard fruits, such as Apples and Pears, but also soft fruits, and amongst them, Strawberries. He pointed out that the wholesale and retail buyers of fruit are able to make their choice of the products of the world's orchards, and only those which are well-graded and packed are in demand. Home growers have been advised for many years to adopt better methods of grading and packing, but the grower who has graded and packed well has reaped no advantage because of the salesmen's method of averaging prices. This, however, Mr. Taylor stated, will be quite different now that the Horticultural Produce (Sales on Commission) Act has been placed on the Statute Book, for salesmen will now have to furnish particulars to the grower, showing the exact prices at which his produce is sold, and, said Mr. Taylor, it is hoped that growers practising grading will now have returns which will show clearly the superior market value of the graded produce. In the countries where grading is practised the inferior fruits are utilised for the making of by-products and if fruit packing stations are established in our fruit growing centres, the culled fruits could be used for the making of vinegar, cider, etc., whilst some might be canned and small Apples used for the making of Apple rings. Canning would help to overcome the difficulty of gluts, and Mr. Taylor stated that the canning of Victoria Plums and Damsons, Strawberries and large Gooseberries should result in traders securing a large and important export trade. In 1926 a National Food Canning Council was formed, consisting of fruit growers, steel plate manufacturers, can makers, brokers and distributors of canned fruits, with a view to developing and organising on sound lines a really successful industry.

Hardwick House, Bury St. Edmunds.—Many, especially among the older generation of gardeners, will hear with regret that this beautiful mansion is now being demolished, and the beautiful Italian Garden destroyed. It will be recalled that Mr. D. T. Fish was gardener at Hardwick House for a number of years, and was a frequent contributor to the gardening papers. The many greenhouses have been pulled down, the turf has been stripped off the lawn, and the outstanding feature of the garden practically destroyed. There still remain the Yew trees in the Italian garden, as well as a beautiful Cedar on the lawn, with a girth of thirty feet. Close to this Cedar is a fine symmetrical copper Beech, said to be one of the first brought to England, and planted in 1760. It is hoped that these trees will be spared. Most of the pleasure grounds, in which there are some beautiful Coniferous trees and a good collection of shrubs, have been sold to a gentleman who is building a large house in the vicinity of the kitchen garden, so that a fair portion of the beautiful grounds and what may be described as a bird sanctuary will be retained. It may be remembered that the novelist "Ouida" lived in Bury St. Edmunds and delighted to visit Hardwick to listen to the songs of the nightingale and the blackbirds. In the beautiful park most of the trees, among which are a number of copper Beeches, are being felled for timber, and the mansion itself is now being demolished.

The Award of Garden Merit.—The *Journal* of the Royal Horticultural Society for January, 1927, gives a list of six additional plants to which the Award of Garden Merit has been granted. In the *Journal* for November three plants were recorded as having received this award in 1926, and of those in the new *Journal*, Colchicum speciosum album is stated to have received the award on October 6, 1924, and Pyracantha coccinea Lalandei on December 8, 1925; it seems as though these were overlooked in the preceding *Journal*. The other plants are Cistus × cyprius, Potentilla fruticosa Vilmoriniana, Helianthemum hybrids and Anagallis Philipsii. Probably the most useful of all these plants is Pyracantha coccinea Lalandei which is an extremely popular plant in gardens. Anagallis Philipsii is the first annual to receive this award. This Anagallis has blue flowers with a red ring in the throat. It is often confused with A. Breweri, a species with red flowers. Mr. F. J. Chittenden has contributed short descriptions of each of the several subjects.

London Parks Superintendents.—A general meeting of Park Superintendents will be held at the Royal Horticultural Society's Hall, Vincent Square, Westminster, S.W.1, on Tuesday February 8, 1927, at 7.30 p.m., for the purpose of forming a branch of the Association for the London district. Addresses will be given by the President, Mr. W. W. Pettigrew, V.M.H., and other members of the Association. A hearty welcome will be extended to all interested in this branch of the horticultural profession.

Director of the Glasgow Parks.—The Parks Committee of the Glasgow Corporation has unanimously agreed to recommend that Mr. William Besant, the present Assistant-Director, be appointed to the position of Director of Parks in succession to Mr. Edward Matthews. Mr. Besant was appointed Assistant-Director in 1923. Prior to that he was for two years Curator at Kelvingrove Park and had held important positions at Castle Kennedy, Hopetoun House, Kew, and Errol Park, Perthshire.

Mr. H. V. Taylor.—In last week's issue we announced the changes in the Horticultural Department of the Ministry of Agriculture whereby Mr. W. G. Lobjoit retired from the office of Controller of Horticulture as from the 31st ult., and Mr. H. V. Taylor assumed the new office of Commissioner of Horticulture on the first of the present month. Both Mr. Lobjoit and Mr. Taylor have gained the confidence of horticulturists during the past six years, for they have done excellent work at the Ministry, and we look confidently to Mr. Taylor to continue to uphold the interests of horticulture in the future. Mr. Taylor is especially fitted by his earlier training and experience for the post. He may be said to be a son of the soil, for his father is a Somerset farmer and fruit-grower. His earlier practical association with the land doubtless impressed upon him the needs of growers, whilst his scientific training especially fits him to consider cognate questions, apart from practice. When Mr. Taylor joined the old Board of Agriculture in 1913 he had won the Diploma of the Royal College of Science and graduated with first-class honours, B.Sc., at the London University. Very shortly afterwards came the Great War, and Mr. Taylor was given the important duty of supplying seed Potatos to the numerous allotment holders who commenced food production all over the country. Enormous numbers of seed Potatos were handled by the Ministry under Mr. Taylor's supervision, and it is not surprising that he has a special knowledge of this important vegetable. In this connection it may be observed that Mr. Taylor enjoys a high reputation amongst Potato-growers. At a later period of the war, Mr. Taylor was associated with Dr., now Sir Frederick Keeble, as chief of the Plant Disease Section of the Food Production Department. The many horticulturists who have met Mr. Taylor at shows, conferences, trials and other such gatherings know that he is a gentleman with a very pleasant personality, ever ready to do his best for gardeners, and place his experience at the disposal of practical men in helping to solve the many problems that confront them as growers. For some years Mr. Taylor and Mr. Lobjoit have served on the Fruit and Vegetable Committee of the Royal Horticultural Society, and both have rendered very valuable service in the deliberations of the Committee, especially on subjects affecting commercial horticulture.

MR. H. V. TAYLOR.

Foreign Potato Imports.—At the annual dinner of the Edinburgh and East of Scotland Potato Trade Association, held on the 26th ult., under the presidency of Mr. T. A. Scarlett, J.P., the toast of "The Association" was proposed by Mr. Harry Hope, M.P., who, in the course of his remarks, said he had always thought that it would be much in the interests of Potato-growers, and consequently of the whole industry of agriculture, and in keeping with the interests of consumers, if the importation of foreign Potatos was made under licence. He meant that in years of scarcity the foreign Potatos should come in and be available for public use, but in years of plenty, when there were enough Potatos at home to feed our own population, the imports of the foreign growers should be regulated so that the home grower would not make a serious loss by his legitimate industry. If this principle were put in practice the result would be that growers would be able to plant a more regular and consistent acreage under Potatos, and that thereby the consumers in this country would be safeguarded in getting a full supply of Potatos at an equitable price. The Potato was, perhaps, the only agricultural crop which could be grown in sufficient quantity to feed our own population, and therefore these foreign imports are only required when the home crop is more or less a failure.

The Storm in Scotland.—Apart from the lamentable loss of life and vast material damage done in cities, towns and villages, writes our northern correspondent, the terrific wind-storm which swept over Scotland during last week-end drew a heavy toll from Scottish woods and plantations. Beginning on Thursday, January 27, the full force of the wind reached its climax on Friday afternoon, when a velocity of 102 miles per hour was registered at the famous Coats Observatory, Paisley. The effect such a wind-storm would have on woods, especially the more exposed ones, may be imagined, but there were cases where even imagination failed when compared with actual results. From John o'Groats to the English borders, few woods escaped damage and many roads—rail and public—were rendered impassable by fallen trees. There was an amusing side in this respect. There were motorists, very anxious to reach their objectives, who added to their impediments large two-handed saws, and when confronted with fallen trees lying across their path, proceeded right away to do the needful on their own behalf. Older folks draw a parallel to this storm in that which swept the east coast of Scotland on December 29, 1879, when the old Tay Bridge fell. There has been nothing to compare with that storm during the intervening years until the one under review. It may also be mentioned that the storm has brought home to proprietors of trees a very important point—their responsibility for damage done to other people's property by falling limbs or the uprooting of such trees. Proprietors in this respect may have some pretty heavy bills to meet for damaged boundary-walls, fences, etc., belonging to their neighbours.

A Flower Festival in Midwinter.—In Frankfurt, Germany, a very successful festival has just taken place, which resulted in the local flower shops being raided, and great business being done. It was announced that the local branch of the German Nurserymen's Association would award a prize to the lady who wore, at the festival, the prettiest bouquet or decoration of real flowers, and that she would be known as the "Flower Queen." The matter aroused public interest to a quite unexpected extent; the festival has taken a place in the front rank of the season's festivities, and the promoters are fully satisfied with the success of their experiment.

Denham Demonstration Station.—The Middlesex Education Committee has published a record of the work of the Denham Demonstration Station during 1926. The Station is maintained by the Middlesex Education Committee as part of their scheme of horticultural education in the county. It consists of about ten acres of land at Rusholt Farm, Denham, Bucks., an estate acquired by the Middlesex County Council for the purpose of small holdings. Trials of special interest in 1926 were those conducted with Runner Beans to show the comparative results of staked and unstaked plants. The crop from Sutton's A.1. from staked plants was estimated at 792 bushels per acre, whereas in the case of unstaked plants the yield per acre was only 264 bushels. Hackwood Park Success gave an estimated yield of 726 bushels per acre from the staked rows, and only 319 bushels per acre from unstaked plants. In a trial of main crop Potatos, Great Scot gave the largest yield, 11 tons 17 cwts. per acre, followed by Arran Chief, 11 tons 12 cwts., King Edward VII, 10 tons, Golden Wonder, 9 tons 10 cwts., and Scottish Farmer, 7 tons 12 cwts. The best results with Great Scot were obtained from a dressing of dissolved bones, 3lb., kainit 4lb. and sulphate of ammonia 2lb., the crop in this case being estimated at 13 tons 12 cwts. 16lb. per acre. In the case of Arran Chief, manuring with "Phutophos" 3lb., kainit 3lb., and sulphate of ammonia 2lb., gave the largest yield, *i.e.*, 12 tons 12 cwts. 96lb. per acre. Where no manure was used, the crop in both cases was only just over eight tons per acre. The trials are under the management of Mr. J. Lawson, the superintendent, who will be pleased to make arrangements for anyone interested to visit the Station and inspect the work that is being done there.

Rainfall at Tirley Garth, Tarporley, in 1926. Mr. J. B. Allan, Tirley Garth Gardens, Tarporley, Cheshire, informs us that the rainfall at Tirley Garth Gardens in 1926 amounted to 33·65 inches or ·62 of an inch more than in 1925. The heaviest rainfall occurred on July 18, when 1·18 inch was registered. December was the driest month with only ·80 of an inch. In November the rainfall amounted to 4·89 inches, this being the wettest month in the year, with twenty-five rainy days. There were two hundred days in which ·01 of an inch or more was registered, and one hundred and forty-seven days on which ·04 inch or more was registered. The driest spell was from March 11 to March 30, when there were nineteen clear, dry days. The hottest day was on July 13, when the temperature rose to 89° in the shade. The coldest days were on January 13 and December 14, when 13° of frost were registered. The year 1926 was, on the whole, dull and sunless.

Planetarium at Liegnitz.—The municipal authorities of Liegnitz, in east Germany, are contemplating the erection of a Planetarium for the town, which would form one of the principal attractions at the forthcoming horticultural exhibition there.

The Preservation of the South Downs.—It is hoped that the scheme for the preservation for all time of the South Downs will materialise as a result of concerted action on the part of local town planning authorities. An influential committee is likely to be formed in Brighton and Hove with the respective Mayors at its head to raise the £5,000 still required to ensure the preservation of the Seven Sisters Cliffs between Seaford and Eastbourne. Mr. A. H. Anderson (Chairman of the Downs Preservation Committee) considers that the movement to save the Seven Sisters would not have been started but for the initiative of the Sussex Downsmen.

Appointments for the Ensuing Week.—Sunday, February 7: Wakefield and North of England Tulip Society's meeting. Monday, February 7: Romsey and District Gardeners' Association's meeting. Tuesday, February 8: Royal Horticultural Society's Committees meet; Annual Meeting at 3 p.m.; Horticultural Club Dinner and Lecture; Jersey Gardeners Society's meeting; Wimbledon Gardeners' Mutual Improvement Society's meeting. Wednesday, February 9: Sheffield Chrysanthemum Society's meeting; Pangbourne and District Gardeners' Mutual Improvement Association's lecture. Friday, February 11: Orchid Club meeting; R.H.S. of Ireland meeting; Post Office Savings Bank Horticultural Society's lecture.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Luminous Plants.*—The phenomenon of phosphorescent dead wood is of very frequent occurrence in some parts of the humid mountainous provinces of India, and I am perfectly familiar with it. At Darjiling, in the Sikkim Himalaya, during the damp, warm summer months (May to October) at elevations of 5,000 to 8,000 feet, it may be witnessed every night by walking a few yards in the forest—at least, it was so in 1848 and 1849; and during my stay there billets of decayed wood were repeatedly sent me by residents, with enquiries as to the cause of their luminosity. It is no exaggeration to say that one does not need to remove from the fire-side to see this phenomenon, for if there is a log of partially decayed wood amongst the fire-wood, it is almost sure to glow with a pale phosphoric light, if the candles be removed and the fire low. A stack of fire-wood collected near my host's (Mr. Hodgson) cottage, at 7,400 feet elevation, presented a beautiful spectacle for two months, and on passing it at night, I had always to quiet my pony, who strongly objected to it. The phenomenon invariably accompanies decay, and is common on Oak, Laurel (Tetranthera), Birch, and probably other timbers; it equally appears on cut wood and on stumps, but is most frequent on branches lying close to the ground in the wet forests. I have reason to believe that it spreads with great rapidity from old surfaces to fresh cut ones. That it is a vital phenomenon and due to the mycelium of a fungus, I do not in the least doubt, for I have observed it occasionally circumscribed by those black lines which are often seen to bound mycelia on dead wood, and to precede a more rapid decay. I have often tried, but always in vain, to coax these mycelia into developing some fungus, by placing them in damp rooms, etc. When camping in the mountains, I have caused the natives to bring phosphorescent wood into my tent, for the pleasure of watching its soft undulating light, which appears to pale and glow with every motion of the atmosphere; but, except in this difference of intensity, it presents no change in appearance night after night. Alcohol, heat, and dryness soon dissipate it; electricity I never tried. It has no odour, and my dog, who has a fine sense of smell, paid no heed when it was laid under his nose. As far as my observations go, this phenomenon of light is confined to the lower orders of vegetable life, to the fungi alone, and is not dependent on irritability. I have never seen luminous flowers or roots, nor do I know of any authenticated instance, such, namely, as may not be explained by the presence of mycelium or of animal life. In the animal kingdom luminosity is confined, I believe, to the Invertebrata, and is especially common amongst the Radiata and Mollusca; it is also frequent in the Entomostracous Crustacea, and in various genera of most orders of insects. In all these, even in the Sertulariae, I have invariably observed the light to be increased by irritation, in which respect the luminosity of animal life differs from that of the vegetable. *J. D. H., Gard. Chron., February* 7, 1852.

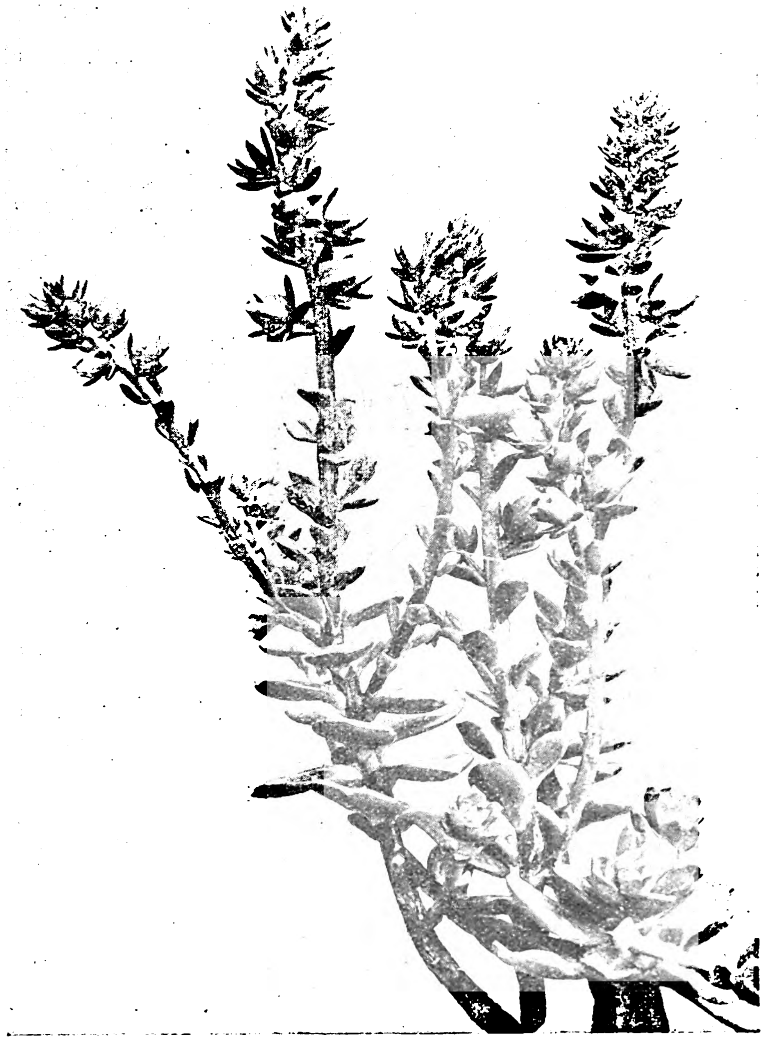


FIG. 48.—COTYLEDON (ECHEVERIA) MULTICAULIS.

R.H.S. Award of Merit, January 25. Flowers deep red, foliage green and bronze. Shown by Cecil Hanbury, Esq., La Mortola. (see p. 89).

Publication Received.— *Inorganic Plant Poisons and Stimulants*, by Winifred E. Brenchley; second edition. The Cambridge University Press, Fetter Lane, E.C.4. Price, 10s. 6d. net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Orchid Grower to LADY LEON, Bletchley, Park, Bletchley, Bucks.

Odontoglossum.—The members of this large family of Orchids are in various stages of growth. Many of the plants are sending up their flower spikes, which should be staked neatly so soon as they become long enough, and protected from damage by slugs and other pests, either by isolating them or wrapping dry cotton wool around the stems. Many pests may be trapped by placing Lettuce leaves on the plant stages. Plants of O. Edwardii and its hybrids which have recently bloomed and are at the present time well advanced in growth, should be repotted, if they require it. If such plants are well established and have sufficient rooting space, with compost in good condition, their repotting may be deferred for another season, as they resent being disturbed too often. Free drainage is necessary for all Odontoglossums; they succeed in a soft, open compost made up of equal parts good peat, A.1. fibre and Sphagnum moss.

Repotting.—Any Odontoglossums, either species or hybrids, that have made some two or three inches of new growth and are about to develop new roots, may be repotted if the compost is decomposed or the plant in need of more pot room. Small, weak plants should have their spikes removed so soon as they show, as these plants should not be allowed to produce flowers until they get strong, and then only be allowed to produce two or three blooms. These early, newly-potted plants should be watered with extreme care, as in many cases the material at the top will appear to be dry, whilst that lower down in the pot will be moist and in a suitable condition for the roots. It is by the close attention to these small details that the best results are assured.

Fumigating.—At this season, when fire-heat is necessary to maintain the necessary temperatures, the houses should be fumigated periodically as a preventive against thrip and other insect pests.

THE KITCHEN GARDEN.

By R. H. CROCKFORD, Gardener to THE RT. HON. LORD WAVERTREE, Horsley Hall, Gresford, N. Wales.

Dwarf Beans.—Where a suitable temperature about 65° can be maintained, a sowing of dwarf Beans may be made in eight-inch pots. Well-crock the latter and cover the drainage material with rough pieces of loam or turf. Prepare a compost consisting of good loam three parts, and old, friable manure, one part, mixed with a small quantity of burnt refuse, a little bone-meal and a dash of soot. Three parts fill the pots with the compost. Sow rather more seeds than will be actually required, and thin the plants to six or seven finally. Cover the seeds with about one inch of soil and water the latter sparingly, keeping it only just moist in the very early stages. When the young plants are about eight inches high, top-dress the roots with rich compost. Place twigs as supports before the growths become too heavy. So soon as pods commence to form, feed the roots liberally with liquid manure; dried blood suits them admirably. Use the syringe freely when the weather is favourable, or red spider may be troublesome. White fly may be kept in check by using a reliable vapour. Grow the plants near to the roof-glass.

Early Peas and Broad Beans.—Where warm, well-drained soil is available these crops may now be sown. Choose a day, if possible, when the soil is likely to dry somewhat. For Peas, draw out the drills and scatter a little burnt refuse on the soil. For the present, only round-seeded varieties should be sown, and they should be scattered somewhat thickly in the rows, thus allowing for a few losses. Dress the seeds with red lead before sowing them, and afterwards cover them with about three inches of soil. Where Peas were sown outside during the late autumn the rows should be watched carefully or enemies will injure the tender growths. Where sparrows are troublesome either place small-meshed netting over the rows or use strands of black cotton. Should cold winds prevail, place twigs or small branches of evergreens alongside the rows. See that adequate supports are afforded the young plants in good time. Broad Beans are best sown in double rows, putting the seeds about six inches apart each way. So soon as the young plants appear above the soil, draw a little earth towards them as a protection.

Horseradish—Where this vegetable is in demand, fresh beds should be made annually in ground that has been trenched deeply and manured liberally with well-rotted dung.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Richardia.—Plants of Richardia africana (Arum Lily) which are now in full growth and showing flowers, should be given liquid manure and soot-water in liberal quantities to keep them in a healthy condition. When producing their spikes, the plants will require these stimulants at least twice a week. Where space is available for them to be planted out under glass they thrive and produce flowers in great quantity, but even when planted out and growing in borders they will require some assistance to produce good spathes. A batch of R. Elliottiana may now be potted, using receptacles according to the size of the tubers, but here it will be advisable to err on the small size rather than overpot them. Only half-fill the receptacles with compost to allow room for top-dressing when the plants have started to grow freely. The plants may be started into growth in a temperature of 55°, taking every care not to over-water the soil. When they are growing freely, and the receptacles are filled with roots they will require liberal supplies of water and liquid manure. R. Pentlandii requires much the same treatment as that advised for R. Elliottiana.

Cyclamen.—Cyclamens raised from seeds sown last August and transferred to boxes or pans should now be placed singly in small pots. The compost may consist of equal parts of loam and leaf-mould, with a liberal sprinkling of silver-sand to render the soil porous. Old brick, broken very finely, should also be mixed with the soil. A night temperature as near 55° as possible will suit the young plants, which should be fumigated lightly on frequent occasions to keep aphis and mite in check.

Seed Sowings.—Seeds that may be sown now in light sandy soil include Streptocarpus, Saintpaulia ionantha, Salvias, Lobelia tenuior and Coleus thyrsoideus.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet, Middlesex.

Peaches and Nectarines.—As the days lengthen the flower buds will develop, therefore the work of pruning and training the young shoots and branches should be completed so soon as possible. Some growers do not prune their Peach trees until March, but I obtain equally good results by pruning any time after the beginning of the year. As the fruits are borne chiefly on one-year-old shoots, fan-training is the most suitable method to adopt with a view to keeping trees furnished with bearing wood from the bottom to the top. Trees that were disbudded carefully last summer and relieved of the old fruiting wood should not require much thinning now. All ties and fastenings should be removed and renewed if necessary. Thin the superfluous shoots and trim off any old snags, etc. Train the main branches evenly, then distribute the young fruiting shoots to fill the space. Three important items in connection with these fruits are not to crowd the trees with useless wood, not to overcrop, and not to neglect the roots. When fastening the young shoots to the walls, allow ample room in the ties for the wood to swell; if the walls are wired care should be taken to prevent the shoots from pressing directly on the wire. A good plan is to pass the tying material twice around the wire before tying the shoot.

Apricots.—As these trees flower early in the season, they are very liable to injury by early frosts. The work of pruning and training the branches should be completed at an early date. If the spurs are somewhat crowded a few should be removed annually and suitable young wood trained in neatly at intervals. When top-dressing Apricot trees use plenty of lime and old brick mortar.

Damsons.—Care should be taken to keep the heads of these trees from becoming thickets of useless wood. A little timely pruning annually will do much to increase the size of the fruits and cause the trees to crop regularly. Trees which have been neglected should be severely dealt with. Thin the crowded branches, remove any suckers springing from the ground, and give every encouragement to the roots to keep the trees vigorous. Good varieties of Damsons are Farleigh, Bradley's King, Merryweather, one of the largest sorts and of excellent quality; and Prune. Good Bullaces are Shepherd's Golden and The Langley.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to COLONEL SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Cherries in Pots.—Those who desire to have a few ripe Cherries in May must exercise patience for the present and hasten the development of the trees later when sun-heat will favour steady forcing, whereas, if mild weather continues, these precocious trees will develop too fast if much fire-heat is used now. When the flower buds begin to swell the mean temperature may range from 40° to 45° at night, and 50° to 55° by day. Always admit a little fresh air and maintain atmospheric moisture by syringing in accordance with the weather. As the days become longer and brighter more air should be admitted by the top and front ventilators, especially if the pipes are warm. The fire-heat should be discontinued at night unless the temperature falls below 40°. No matter how carefully the trees are cleansed green and black fly generally put in an appearance, and to combat these pests the house should be lightly fumigated on two or three occasions, the last preceding the opening of the first flowers. Cherries also do well when planted out in narrow borders, and growers should restrict the varieties to three or four of the best which ripen in succession. Well-managed pot trees last a great number of years, increasing slowly in size, but improving in fertility, provided they are not allowed to become exhausted by overcropping. To prevent this the spurs and blossoms should be thinned freely every year. When the trees are in flower a fairly dry, steady warmth, with the aid of sun-heat and plenty of air will ensure a good crop of fruit.

Plums.—These fruit trees start kindly with Cherries, and none but the very best dessert sorts should be chosen for growing in pots or inside borders. Plums should be allowed to develop and ripen their fruits slowly; they will not be hastened, but are a success when started early and allowed to develop through the various stages of their growth steadily.

The Grape Room.—Carefully examine the bunches of Grapes at short intervals and remove every faulty berry. See that the room is judiciously ventilated to expel stagnant moisture and examine each bottle and fill it with soft water as the latter is absorbed by the wood. In damp, foggy weather the room may be kept close, dark and dry enough to prevent mould on the berries. The less fire-heat that is used to maintain a temperature of 40° to 43° the better the bunches will hang until May.

THE FLOWER GARDEN.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Erigeron.—This genus includes a number of beautiful species and varieties which are invaluable for grouping in the herbaceous or mixed border. Some, including E. aurantiacus, E. glabellus, E. leiomerus, E. mucronatus and the varieties B. Ladhams and Elsie, vary in height from six inches to fifteen inches and are suited to the rock garden. E. Coulteri, E. Antwerpia alba, E. philadelphicus Pink Pearl, E. speciosus and its varieties Merstham Glory and Quakeress, are taller and excellent for the border, the last two being specially fine for filling lawn beds, as they flower with wonderful profusion over a long period. After flowering, if desired, the plants may be lifted, divided and planted in the reserve garden, their places being taken by hardy Chrysanthemums or China Asters grown in the reserve garden for the purpose.

Chrysanthemums.—The hardy varieties of Chrysanthemums are indispensable for furnishing beds and borders during late summer and autumn; not the least of their merits being the fact that they may be grown in the reserve garden during the summer and transplanted where they are to bloom. This accommodating habit renders them of immense importance for re-furnishing beds in which early flowering subjects are over, as well as for filling blanks in the mixed border. If not already done, the stock should be propagated forthwith, taking the cuttings from the stock plants that were placed in boxes of soil last autumn and wintered in cold frames. The cuttings are best dibbled into seed-boxes; they will root readily on an open bench or on shelves in a house that is kept fairly close, with a temperature ranging from 44° to 55°. They may also be rooted in cold frames, if no other accommodation is available. As the plants are hardy, they may be planted out-of-doors during March. To ensure a bushy habit they should be stopped several times during the growing season; the amount of stopping will depend on the variety and the purpose for which the plants are required. The following varieties are all excellent for bedding purposes:—Almirante, Red Almirante, Dick Barnes, Crimson Marie Masse, Polly, Crimson Polly, Horace Martin, Goacher's Crimson, Flora, Normandie, Sanctity, Pluie d'Argent and Verona.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Sweet Peas.—If not already planted, Sweet Pea seeds should now be sown in pots and germinated in a cool house. From three to five seeds are sufficient for each three-inch pot. The soil employed should be good turfy loam with the addition of sand and leaf-mould. The seeds may be steeped or soaked in water for twenty-four hours before sowing them to hasten their germination, but if the soil is used in a moderately moist condition and watered so soon as the seeds are sown, the plants will be very little, if any, later than if the seeds are soaked. A Belfast firm of seedsmen supply what they term "Energised" seeds, and the claim is made that by using these specially prepared seeds germination is advanced by nearly a week. If this hastening process does not affect the vigour and after life of the plants raised from these "energised" seeds, it will be of great service to growers, and may possibly be extended to many other seeds that are notorious for slow and irregular germination.

Trenches for Sweet Peas.—The preparation of the trenches or ground intended for growing Sweet Peas should now be proceeded with in order that the soil may have time to settle before planting time arrives. It is advisable with Sweet Peas as with most other crops, to change the site on which they are grown frequently, and where this can be done, it will be found that less elaborate preparations of the ground are necessary; it will be sufficient to double-dig the soil, add a liberal amount of manure and, before planting, give the top spit a generous dressing of bone-meal and wood-ash. Where, from lack of space or other causes, it is desirable to grow Sweet Peas on the same site year after year, failure is almost inevitable unless the soil is renewed from time to time, and this may be readily accomplished by taking out the old staple to a depth of two feet and substituting soil from the vegetable quarters, adding manure, etc., as the work proceeds, and mixing the whole thoroughly. The old soil may be put where the fresh is taken from, and although practically exhausted so far as the growing of Sweet Peas is concerned, will suit many other crops to perfection.

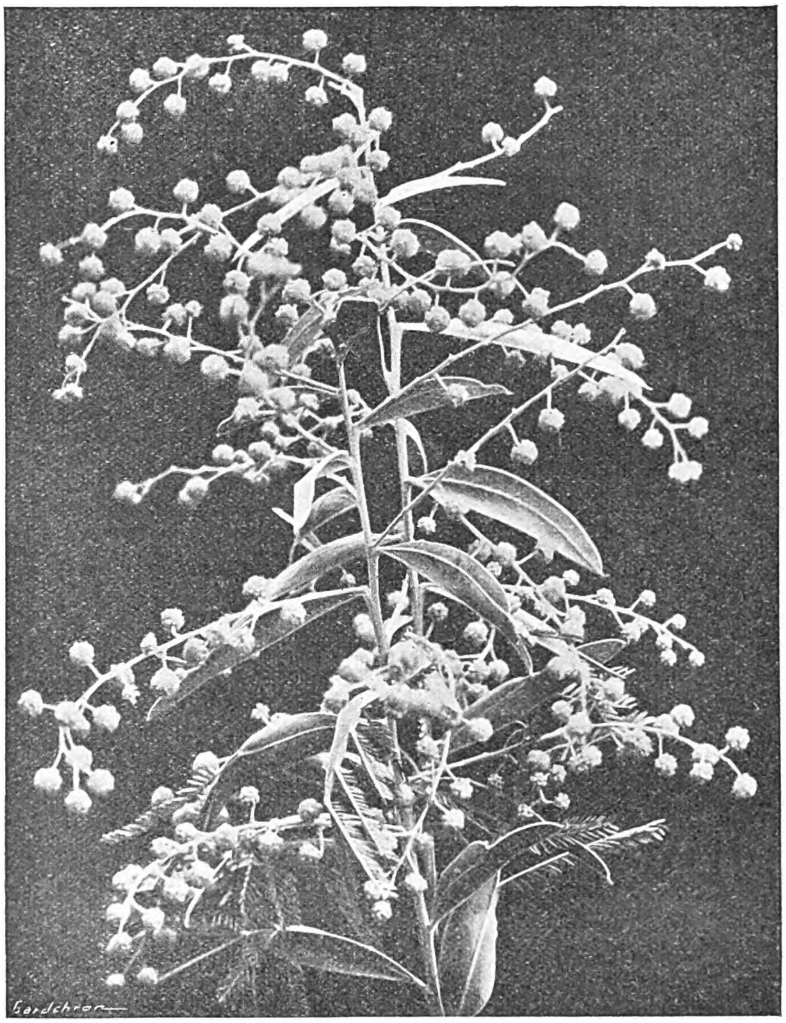


FIG. 49.—ACACIA HANBURYANA.
A natural hybrid between A. podalyriaefolia and A. Baileyana. Flowers yellow.
Shown by Cecil Hanbury, Esq., La Mortola. (see p. 89).

Rhubarb for Succession.—Where Rhubarb is in constant demand a succession to the earlier supplies forced under cover may be easily procured by covering selected crowns where they are growing with barrels or boxes surrounded by fermenting materials, such as stable litter and freshly-gathered leaves. Empty Apple barrels with moveable lids make splendid covers for Rhubarb, as the stalks may be kept under observation and readily reached when ready for pulling. The earlier forced crowns should be placed outside so soon as the crop has been gathered, and if allowed a few weeks to recover, they will be useful for making fresh plantations.

INDOOR PLANTS.

ANOPTERUS GLANDULOSUS.

THIS Tasmanian shrubby member of the Saxifragaceae is hardy only in sheltered gardens of the west. It forms a bush several feet high, with short-jointed, terete stems, clothed with whorled clusters of from four to seven glabrous, dark green, ovate leaves, six inches long.

The shoots bear, at their apices, erect racemes some few inches long, with twelve or more six-petalled flowers, loosely arranged on the upright spike. The blooms are pinky-white, and half-an-inch in diameter.

Anopterus glandulosus usually flowers in the cool greenhouse in January. It may be grown in a large pot, but is more satisfactory when planted in a well-drained border of fibrous loam and peat.

AGLAONEMA COSTATUM.

SHALLOW pans, six inches in diameter, are suitable receptacles for the cultivation of this ornamental foliaged, prostrate growing, tropical Aroid.

It forms a tangled mat of fleshy stems with tufts of comparatively large leaves of a glossy green with a white midrib, and the leaf-surface is irregularly blotched with white.

This plant may be increased by division in spring. As it grows only a few inches high it is a suitable subject for furnishing the front stage in the plant stove, and will retain its fresh colouring throughout the year. *F*

ORCHID NOTES AND GLEANINGS.

THRIPS ON ORCHID SEEDLINGS.

A NUMBER of species of thrips infest glasshouses, including Parthenothrips dracaenae, Heeg., which occurs on Palms and Aspidistra; Heliothrips haemorrhoidalis, Bché., on Palms and Azaleas; Thrips tabaci, Lind., on a great variety of plants, including Carnations; and Heliothrips femoralis, Reut., on Orchids.

Most of these have been collected by the writer in glasshouses in England or in Belgium. They may be introduced into glasshouses as adults in the soil, or immature stages about the plants.

In connection with the case cited by your correspondent, Mr. R. Brooman White (p. 18), it is probable that fresh infestation from out-of-doors takes place in his glasshouses, and as regards control, the subject is best tackled in at least two ways in order to control the pest on his Orchids. Firstly, reducing the infestation in the houses under consideration, and secondly, securing that new supplies of soil and plants, etc., taken into the glasshouse shall be, as far as possible, free from the pest. During the past year a considerable amount of work has been done in the United States, the British Isles and on the Continent of Europe with calcium cyanide, and it is now definitely established that this insecticide can be used with success for the control of thrips. Used at the rate of one-third-of-an-ounce per one thousand cubic feet, calcium cyanide gives a fair control of the adult thrips, but does not destroy the immature insects. A series of fumigations is therefore necessary, so as to destroy the pests as they reach maturity, and before they have time to oviposit.

With seedling Orchids, it would be advisable to start a series of fumigations with a dosage of one-eighth-of-an-ounce per one thousand cubic feet, and gradually increase this dosage when it is seen that the plants re-act favourably. In connection with keeping down re-infestation of the glasshouses, this would be a question of adapting the calcium cyanide treatment. The granular form of this insecticide may be used as a soil fumigant in sufficiently large quantities to kill any hibernating thrips, *i.e.*, at the rate of one pound per twelve cubic feet.

In addition to the soil fumigation, a periodic fumigation of the glasshouse in which the seedlings are raised would probably keep the thrips well under control, so that they do not obtain access to the Orchid seedlings to cause injury.

Although control measures applied directly to the seedling Orchid might yield some temporary success, the wider scope necessary for the use of calcium cyanide would be more likely to yield general control, and gradually eliminate losses caused by the pest. *Herbert W. Miles, M.Sc.*

ALPINE GARDEN.

ESCALLONIA RUBRA PYGMAE.

THE little shrub bearing the above name has proved a most delightful rock garden subject. It is evergreen, of a close, neat habit, and does not exceed one foot in height. The bright, rose-crimson flowers, nearly half-an-inch long, are borne profusely from soon after mid-summer to late autumn.

This dwarf form of Escallonia rubra appears to be perfectly hardy and easy to cultivate in any light soil and open situation. It is a desirable addition to a collection of dwarf shrubs. *J.*

HELICHRYSUM FRIGIDUM.

MR. RALPH ARNOLD'S notes on this plant (p. 489, vol. LXXX) were of great value to the many who have failed with this exquisite little alpine. I may, perhaps, be allowed to supplement his note by stating that H. frigidum does well in a moraine or scree, which appears to give the conditions it requires. I have grown it successfully on such a moraine. It was composed in the usual way with whinstone chips above the rough stones, and, with some old mortar rubbish and a mere modicum of soil and sand on the surface. The moraine sloped gently to the south, and H. frigidum grew exceedingly satisfactorily. Those who can give this moraine treatment will find it very beneficial to a number of plants which are difficult under ordinary conditions, and it may specially be recommended to those whose gardens have a heavy winter rainfall. *S. Arnott.*

PRIMULA PUBESCENS.

PRIMULA pubescens, which includes a wide range of natural hybrids from P. hirsuta × P. Auricula, ranks among the early-flowering Primulas. Of the various plants, some lean towards the garden Auricula and others show characters of P. hirsuta. They are free-flowering, delightfully fragrant, bold of colour, and vary in height from three inches to five inches.

A rich, sandy loam and good drainage are essentials to the successful cultivation of this Primula, and water should be used sparingly during the winter.

A few of the best of these hybrids are P. pubescens alba (syn. P. nivalis), rather a rare plant; Mrs. J. H. Wilson, lilac-purple; The General, terra-cotta; The Professor, rich claret, and Ruby, ruby-red. *S. D. R.*

HARDY FLOWER BORDER.

INULA HELENIUM.

BOLD and effective plants are frequently needed for the back of large borders or the wild garden, and they are specially desired for furnishing a display in the later months of summer. Inula Helenium is a bold flower of this description.

Like most tall plants, it requires good soil if full satisfaction is to be derived from its boldness; grown in ordinary garden soil, its general stature is about six feet or a little more, but if given good, fertile loam, well enriched with manure and not too dry, it will attain a height of eight feet. At this stature it is a most imposing plant, after it has had a year or two to develop.

The plant has large, massive, imposing leaves, and large heads of yellow flowers, which generally begin opening in July and continue into September.

For propagating purposes large plants may be divided, but a stock may be raised from seeds. Planting may be done in spring. *S. Arnott.*

FLOWER GARDEN.

VERBENA VENOSA.

I WAS pleased to see Mr. Coutts' reference to this plant in his remarks on the Flower Garden, as it shows that this beautiful Verbena is still a favourite with some. Although acquainted with it previously, I had not grown it until last year. The plants were placed in seven-inch pots the previous autumn because no other size was available, the intention being to divide them and put them into three-inch pots in the spring. That, however, through stress of work, was not done, and the plants were planted direct from the seven-inch pots without division, at a distance of about two-and-a-half feet apart.

I associated the plants with Cineraria maritima, using also some blood-red Beets. The bed was greatly admired and gave good colour long after other subjects had faded.

Strangely, I had intended this year to interplant it with Calceolaria amplexicaulis, and am glad to see that Mr. Coutts favours this association. I had also intended to put some tall specimens in a bed of pink, Ivy-leaved Pelargoniums, which I think would make an agreeable colour scheme.

This plant is nearly hardy, and last winter had only the protection of a cold house from which frost was not excluded. The flowers are suitable for cutting. *William F. Rowles. Hardwick House Gardens, Bury St. Edmunds.*

ROSE GARDEN.

ROSES IN CANADA.

BEING in Montreal in November as one of the judges at Canada's National Flower Show, I was very agreeably surprised at the remarkable quality of the Roses staged. In one large group from the Dale Estate, Brampton, Ontario, were over two thousand blooms, beautifully arranged, the bulk with stems 2 feet to 5 feet long, of such varieties as Souvenir de Claudius Pernet, Briarcliff, America (the best of all), Templar, Madame Butterfly and others, including some superb seedlings which will be heard of later. The Dale Estate, where this beautiful group came from, is the largest and most thoroughly up-to-date flower growing establishment on the American continent, in the opinion of the most competent judges.

Additional fine Rose collections were shown by Messrs. Miller and Sons and Mr. John H. Dunlop, both of Ontario. The Roses were of superior quality to those shown at the autumn exhibitions in the United States. Chrysanthemums and other flowers brought out keen competition at this same exhibition. *W. N. Craig.*

FLORISTS' FLOWERS.

CHRYSANTHEMUM LOUISA POCKETT.

FOR several years I have grown this excellent Chrysanthemum as a decorative variety, flowering it on the terminal bud, and I know of no other variety that can be depended upon to give such useful results.

Whilst the flowers are pure white from the early crown buds, the late crown and terminal buds are a pleasing delicate pink. Moreover, the plant is slow in developing and does not reach perfection before December, and will last well over Christmas.

By removing the crown buds, a plant will produce from nine to twelve well-shaped blooms on the disbudded terminals, with no trace of an open centre. Even the extreme terminals will produce perfect blooms when allowed to remain, while the stem remains stiff and rigid. Another point in its favour is that it does not become affected with disease readily. *R. Gardner.*

NEW VARIETIES OF PERPETUAL-FLOWERING CARNATIONS.

THE following new varieties of Perpetual-flowering Carnations have been registered with the British Carnation Society.

Carnation Colonel Langford.—A deep cerise-coloured variety. Raised by Lieut.-Col. W. J. Langford, Harefield, Romsey, Hert .

C. Mrs. Langford.—The colour of this variety is salmon-pink. Raised by Lieut.-Col. W. J. Langford.

C. Ruby Glow.—A variety of ruby-red colour. Raised by Messrs. Stuart Low and Co., Bush Hill Park, Enfield.

CARNATIONS IN AMERICA.

NOTHING at all sensational is being introduced in America this year in the way of new Carnations. Unquestionably the best is Sceptre, raised by Mr. A. A. Pembroke, of North Beverly, Mass. This is a seedling from Pink Delight, a little warmer in colour, slightly larger, and much more floriferous. So many as 140,000 rooted cuttings had been sold up till January 1. Pink Delight appears to be losing ground; it never attained much popularity in America outside of New England, which latter is, however, the leading Carnation-growing centre in this country.

Laddie still stands supreme in its colour; being a rather shy bloomer it must realise a fancy price to be profitable. Spectrum, from Messrs. Dorner and Sons, Lafayette, Indiana, is easily the dominant red to-day.

I saw a house containing 20,000 plants just before Christmas at the establishment of Mr. James Wheeler, Natick, Mass. which were a wonderful sight; the flowers were large and carried on long, strong stems. Ten thousand flowers were available for the holiday trade, and the wholesale price was far ahead of all other varieties, being $25.00 per 100. Incidentally, I might state that Mr. Wheeler spent three months in England last summer, and sails again in May for another trip; he is a native of Wiltshire.

There are several new sports from Matchless which, I think, does not do very well in England. One is variegated resembling the old Prosperity, another named Gloria, originating with Mr. Wheeler, is rose-pink in colour. Radiolite, a western variety, is brilliant red, and seems likely to win favour. In the rose-pink section Mrs. C. W. Ward, or an improved form of it, is still more grown than any other; it bursts the calyx rather badly, however, a defect which Betty Lou, a newer variety, is less prone to. Eldora, raised by Mr. William Sim, of Cliftondale, Mass., is practically the only variegated variety grown here to-day, having displaced Benora. Mr. Sim is introducing Jewel this season; it is similar to Pink Delight in colour and a very free bloomer, with good, wiry stems. His last season's introduction, Arctic, a pure white, very fragrant variety, appears to be doing fairly well. Matchless, Harvester, and White Delight are our leading whites; a White Ward appeared in Denver, but will not seriously compete with the other varieties named, although a truly remarkable keeper. Johnson's Crimson, from Mr. C. B. Johnson, Woburn, Mass., is the best crimson we have, Donald coming next. Mr. Johnson, in Ivory, has one of our coming whites, also other very fine seedlings.

Carnations here are not so popular as in Great Britain; they sold poorly as compared with other flowers at Christmas. Growers are prone to keep them too long on the plants and market them too late; in addition, tied up in round bunches of twenty-five each, crowded tightly into large wooden or corrugated boxes, and mauled over by salesmen on the flower stands they get badly bruised, and it is little wonder that they "go to sleep" quickly in our steam-heated American homes. *W. N. Craig.*

NOTES ON JAPANESE AZALEAS.

If Upper Burma and the Tibetan frontiers of China are the central home of the true Rhododendrons, Japan may fairly claim to be the stronghold of the Azaleas. Up and down the country, in their season they splash the landscape with vivid colour, be it orange, red, white, pink or purple. Not that Nature mixes all these colours indiscriminately.

In the half-shade of the forests surrounding the chain of lakes lying along the northern foot of Fujiyama, the lovely mauve-flowered Rhododendron reticulatum (R. rhombicum, of Bean) is alone in its glory. Travelling a few miles westward over the Motosu Pass, after leaving behind the cindery lava soil of the great volcano, one finds the sunny slopes ablaze with the fiery-salmon or tawny-red of R. japonicum. On the same banks there is also found a small Crab Apple, covered in May with snow-white blossom, while sprawling over rock and shrub, wild Wistarias flaunt their lilac-blue flowers, the whole producing a wonderful chromatic effect.

In the southern island of Kyushu, Azaleas are even more abundant, and range from sea-level up to several thousand feet. Although of many colours and of somewhat diversified appearance, Mr. E. H. Wilson, in his *Monograph of the Azaleas*, has grouped many of these together under the one specific name, obtusum. I have not critically examined these plants so offer no opinion on this classification. It is certain, however, that the colours of the flowers change more or less definitely as one ascends to higher elevations. On the Unzen Mountains for instance, mauves very largely predominate in the upper zone; a little lower down vivid pinks and reds are met with, while still lower, the flowers are almost all apricot-coloured, and no mauves at all are found. This probably explains why the magenta form, known as amoenum, is the hardiest and best suited to our English climate. As the different colour forms overlap, and appear to intermix, on the Unzendake, a casual visitor would conclude that on this mountain there occur at least three closely allied species which apparently hybridise freely on the fringe of their respective altitudinal zones. These parents of the now well-known Kurume Azaleas are all sun-lovers, and occur on the open hillsides and in places such as one would expect to find Gorse growing at home.

If these tiny-flowered Azaleas of the mountain slopes can be likened to the equally small-flowered Rhododendrons of the Lapponicum series—for wind and sun does not seem to injure them—the large, forest-loving Azaleas of the Nikko district may certainly be compared with the Falconeri series. Both R. quinquefolium and R. pentaphyllum are essentially sylvan species, and in the shelter of the woodlands form sparsely-branched trees up to twenty-five feet in height.

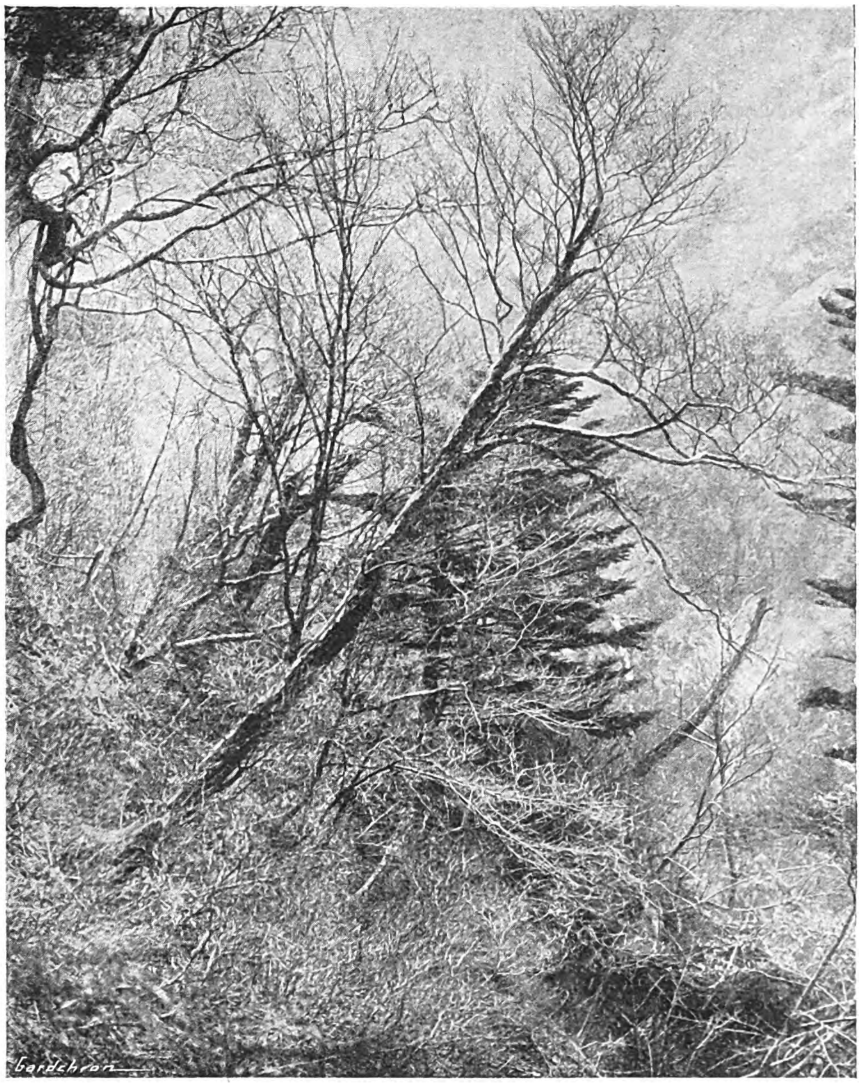


FIG. 50.—THE HOME OF THE YASHI AZALEA; SHOWING A FINE SPECIMEN OF STUARTIA PSEUDO-CAMELLIA, 30 FEET HIGH.

The spring of 1926 was a very late one in Japan, and on April 28 snow was still lying around the lake of Chuzenji, which is about 4,300 feet above sea-level. The white-blossomed quinquefolium had not opened its flowers before I left on May 20, but the more beautiful Yashi Azalea (R. pentaphyllum) was already out. This Azalea is incomparably the finest I have ever seen. Imagine a greatly glorified R. Vaseyi growing as a tree and with much larger and deeper pink flowers, and the reader will have some small idea of its beauty. The flowers measure about four to five centimetres in diameter, according to Wilson, and are usually solitary, starring the bush- or tree-top with wide-open, almond-pink blossoms. Viewed against a grey sky or the hazy blue of a distant mountain their beauty holds one spell-bound. As already stated, this Azalea forms small straggling trees up to about twenty-four feet, or twenty-five feet, with a trunk circumference of forty inches or more. As their neighbours — Stuartia Pseudo-camellia (Fig. 50), Hamamelis arborea, Hydrangea petiolaris and many more are all of proved hardiness in England it is difficult to understand how so lovely a plant is still virtually unknown in our gardens[*]. It is evident that it requires the shade and the leafy soil of a deciduous wood. Given these conditions, with ample moisture and perfect drainage, I see no reason why it should not thrive with us; certainly no trouble would be too great to achieve success with such a superb plant. I was always fond of Azaleas, but since my last visit to Japan I have conpletely lost my heart to them. *Collingwood Ingram.*

---

[*] Mr. Bean informs me that this Azalea has been introduced to Kew and Caerhays, but has disappeared from the former collection. It was formerly regarded as a pink form of R. quinquefolium but is undoubtedly a distinct species.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

NOMOCHARIS[*].

IN number LXXI of the *Notes* from the Edinburgh Botanic Garden, dated, June 1925, Mr. W. E. Evans published a revision of the genus Nomocharis, in which he enumerated a pair of new species, suggested adjustments in the nomenclature and relationship of others, and for the time left the total number of species at twelve. The arrival of further material from the explorers, Forrest and Ward, has enabled Mr. Evans to amplify and, in the main, to confirm the conclusions already arrived at, as well as to describe a new Nomocharis—N. Georgei.

Of the two new species referred to in No. LXXI of the *Notes*, a melancholy interest attaches to one—N. basilissa—as it was discovered by Farrer during the venture which ended so tragically in the autumn of 1920. A few months before he died, Farrer found the plant (F. 1,738) in the dwarf canebreaks on the upper alpine region (12,000 to 13,000 feet) on the Chawchi Pass, and in a letter to Mr. Euan Cox[†] wrote of it as "bright fiery vermilion." On his field ticket for this Nomocharis, Farrer wrote that he found the bulbs so densely impacted in the roots of the canebrakes that he did not then obtain a specimen[‡]; but a few weeks later, on his return to his hut at Nyitadi—"above everything and beyond Nowhere"—he found it (F. 1,800a) growing sporadically on the Mokuji Pass and secured some bulbs.

To cultivators the most interesting point about N. basilissa is the colour of the flowers, which moved Farrer to a characteristic word-picture[§]: "Something flared out of the Bamboo scrub. Could I be mad? Was it Lilium chalcedonicum or L. pomponium on the Nenanson road? No: it was an unspotted Nomocharis with flowers of a tone unknown to me in all hardy Liliaceae, of a pure salmon-flame-colour that makes even L. pomponium and Tulip La Merveille opaque by comparison, and can only be paralleled in the most glowing notes of Papaver orientale. Nor is it abundant, this unique beauty; occasionally only, in very narrow limits, among the scrub and Bamboo. But with its solitary head, like Little Em'ly, "'hanging a little down,' 'Oh, what a wonder!'"

Incidentally, the head is not apparently always solitary nor hanging "a little down," for on his field note for this number (1,800a) Farrer wrote: "When well-developed it can attain three to four feet, and can carry as many as five or six flowers, always *absolutely pendent*,[*] not horizontal."[†] A comparison of this field note and Farrer's description of the plant in his letter to *The Gardeners' Chronicle* affords a good example of the confusion Farrer's descriptive pen sometimes unwittingly caused to those who seek to get to the core of things. The flowers of N. basilissa cannot very well be hanging "a little down," and at the same time "absolutely pendent"; nor, at one and the same time, can the colour be that of L. chalcedonicum, L. pomponium and Tulip La Merveille, for the colour of the particular Tulip is quite different from that of either Lily; not by any stretch of the imagination can it be called a "fiery vermilion."

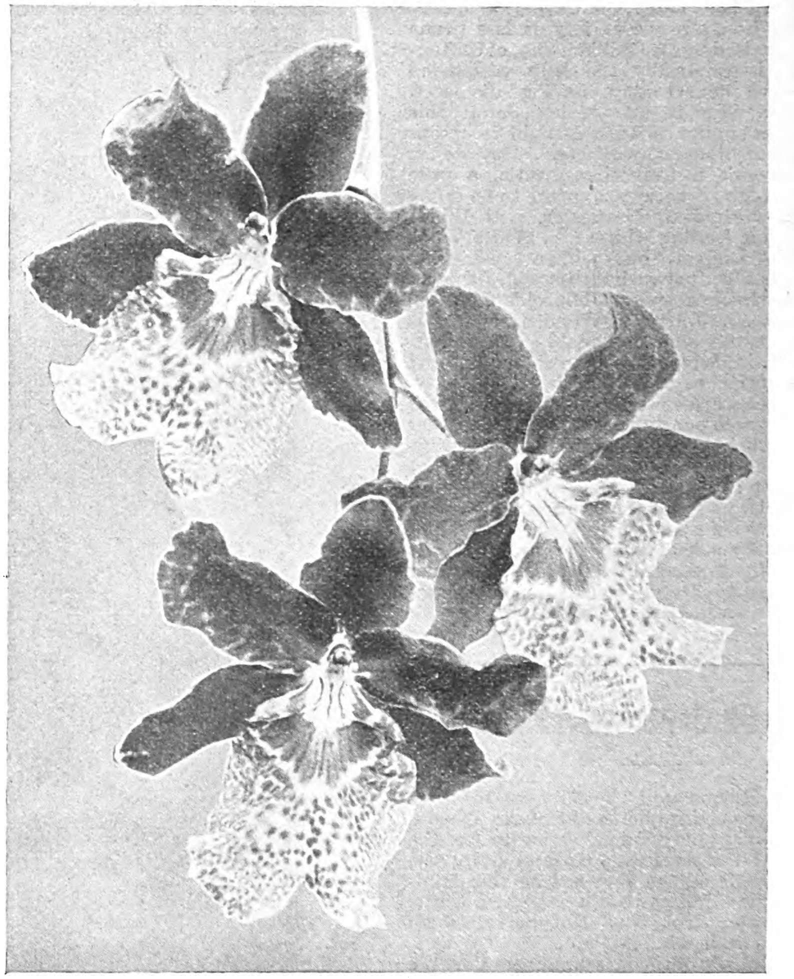


FIG. 51.—ODONTONIA NUBIA VAR. RENOWN.

R.H.S. First-Class Certificate, Jan. 25. Flowers crimson, carmine and red. Shown by Messrs. Charlesworth and Co. (see p. 88).

No seeds of this fine thing of Farrer's reached home from him, but, happily, Forrest came upon the plant in the same area four years later, and seed (F. 25,587) received from him has since germinated at the Edinburgh Botanic Garden. Assuming that, in his enthusiasm, Farrer did not let his pen run away with him, it is evident that the colour as well as the port of the flowers varies within wide limits, because Forrest describes the flowers simply as "white, interior base heavily flushed purple-crimson"—a very different thing from the "luminous salmon-scarlet" or "fiery vermilion" of Farrer's specimens; nor, on his field ticket, does Forrest mention the "absolutely pendent" habit of the flowers as Farrer saw them. Mr. Evans, however, observes that in the dried state no difference of colour can be detected between the specimens of either collector, and so cultivators must possess their souls in patience until the species has reached the flowering stage in this country. As it is in cultivation at Edinburgh that is not likely to be long.

The second of the pair of new species published in No. LXXI of the *Notes*—N. euxantha—is not in cultivation yet, although it was first found by Forrest eight years ago on Ka-gwr-pu in the Tsarong. He found it again in much the same area three years later, and once more, in a new station in the Mekong-Yangstse divide two years ago, on each occasion at 13,000 to 14,000 feet. The flowers are nodding and fragrant, and what is of more interest to cultivators, are deep yellow, or soft yellow, faintly marked or spotted with purple.

Happily, better luck has attended the explorer's discovery of N. Georgei (F. 24,772, 26,853 and 27,328), the new species now described by Mr. Evans, as flowering bulbs have been raised at Edinburgh. The petal-colour is "rich, soft blue-purple throughout, interior lightest." The nodding flowers are solitary and borne on stems six to eighteen inches high, crowded with leaves, and Mr. Forrest regards this Nomocharis as a very beautiful plant, unique in the colour of the flower, which rivals that of N. saluenensis. Those who saw the clump of this lovely plant in flower on the Edinburgh rock garden last May and June will agree with him. Except in regard to colour, Mr. Evans places this species near N. Souliei, the Fritillaria Souliei of Franchet,[*] a most attractive species, with deep, black-crimson, fragrant flowers, which seems so far to have beaten cultivators, though seed and seedlings have not been lacking.

Another Nomocharis now in cultivation is N. nana, an old friend, Lilium oxypetalum, in the new guise bestowed on it by Mr. E. H. Wilson.[†]

---

[*] *Notes from the Royal Botanic Garden. Edin.*, vol. XV., LXXIII, pp. 191-197, with plate (Aug., 1926).

[†] *Farrer's Last Journey*, p. 184 (1926).

[‡] *Notes from the Royal Botanic Garden, Edin.*, LXXI, p. 25 (1925).

[§] *Gard. Chron.*, December 17, 1921, p. 314.

[*] The italics are mine. *A. G.*

[†] *Notes from the Royal Botanic Garden, Edin.*, LXXI, p. 26 (1925).

[*] *Journ. de Bot.*, XII, 221 (1898).

[†] *The Lilies of Eastern Asia*, p. 13 (1925).

This Himalayan species has been found again, this time by Ward on Nyima La, near Tumbatse, in southern Tibet, in 1924, and like others before him, the explorer evidently found it difficult to place the plant which began its herbarium existence as a Fritillary, was subsequently transferred to the Lily genus, and has ended up as a Nomocharis. When Ward found the plant it must have puzzled him, because as he wrote on the field ticket: “The bulb, dissimilar perianth lobes and flower colour suggest Nomocharis. But there is nothing nomocharoid in the habit, petaline glands or stamens. Probably a Lilium, not a Fritillaria. Note that the perianth is more or less persistent and that the stamens are slightly adherent to the base of the inner perianth segments. The glandular function seems to belong to the hairs rather than to the sinus between, hence we may have here a transition to the divided glandular area of Nomocharis.” In fact, the species seems to be on the now, more or less imaginary, dividing line which has been drawn to separate Nomocharis from Lilium.

The cultivation of Nomocharis has not kept pace with the scientific consideration of the genus which was resumed in 1918 by Bayley Balfour at the point where Franchet left it twenty-eight years ago, and has since been continued at the Edinburgh Botanic Garden by his successor and Mr. Edgar Evans, with the active assistance of Mr. George Forrest who, over a long series of years, has done so much more than other explorers to place herbarium material and seeds of Nomocharis at the disposal of science and horticulture. The species are undoubtedly difficult to manage out of doors, but not more difficult, possibly, than other plants, which, for some time after their introduction were thought to be intractable, but have since proved manageable.

“One of the reasons for the present lack of successful cultivation (of Nomocharis) seems to be that gardeners treat it as a Lily. Now most Lilies grow under conditons where the bottom half of their main stem is shaded from the sun; in some cases they actually grow in half-shade; in others they poke their noses out of Bracken or low shrub. I have never heard of a Nomocharis growing anywhere except in an open position, sometimes in rough alpine turf, sometimes in richer meadowland; but never in a situation that can be called sheltered. There is one other main difference between the Lily and the Nomocharis: Lilies may grow in clumps, but this is not, apparently, a golden rule. They are often contented if their nearest neighbour is ten yards away. As far as I can gather, this is not the case with Nomocharis. They are true community plants, never so happy as when they are jostling their neighbours and carpeting the alpine turf. It is certain that their pull roots are strongly developed, and there is every reason to believe that some of them, at any rate, run underground; this is the case with the one we found.[*] Their bulbs are extremely deep considering that the plant rarely exceeds two feet in height. On each occasion that we dug for them we found that they were at least as deep in the ground as the stem was tall. With these facts, or suppositions, to work on, it is possible to suggest certain lines of treatment. I could imagine them succeeding on a slope facing north, or preferably north-west, with good drainage, but not dry. They will require some depth of soil, certainly worked four feet down, and the soil should be a lightish loam with a fair addition of humus. As we cannot absolutely guarantee a moist summer, they might be under the lee of a clump of trees that would keep off a few hours of direct sunlight.”[†]

It has often been said that it is waste of time for British cultivators to attempt the reproduction of natural conditions in the general cultivation of exotic plants, and when Upper Burma, Tibet and western China are in question, any approach to the attainment of these natural conditions is clearly impossible. None the less, gardeners always like to know the conditions under which wild plants grow, and clever cultivators will draw their own deductions from Mr. Cox's shrewd observations. If, as may well be the case, a moist summer is in any way essential to the welfare of the Nomocharis from Upper Burma and other monsoon areas, the point should present but little difficulty, for at this time of day it is hardly likely that anyone would embark on the serious cultivation of difficult plants without adequate overhead or subterranean irrigation for use on the comparatively rare occasions when Nature fails us. It may be, however, that sunlight has a more direct bearing on the cultivation of alpine plants in general than is at present realised, and should that be so it would seem to be a point past the power of man to alter.

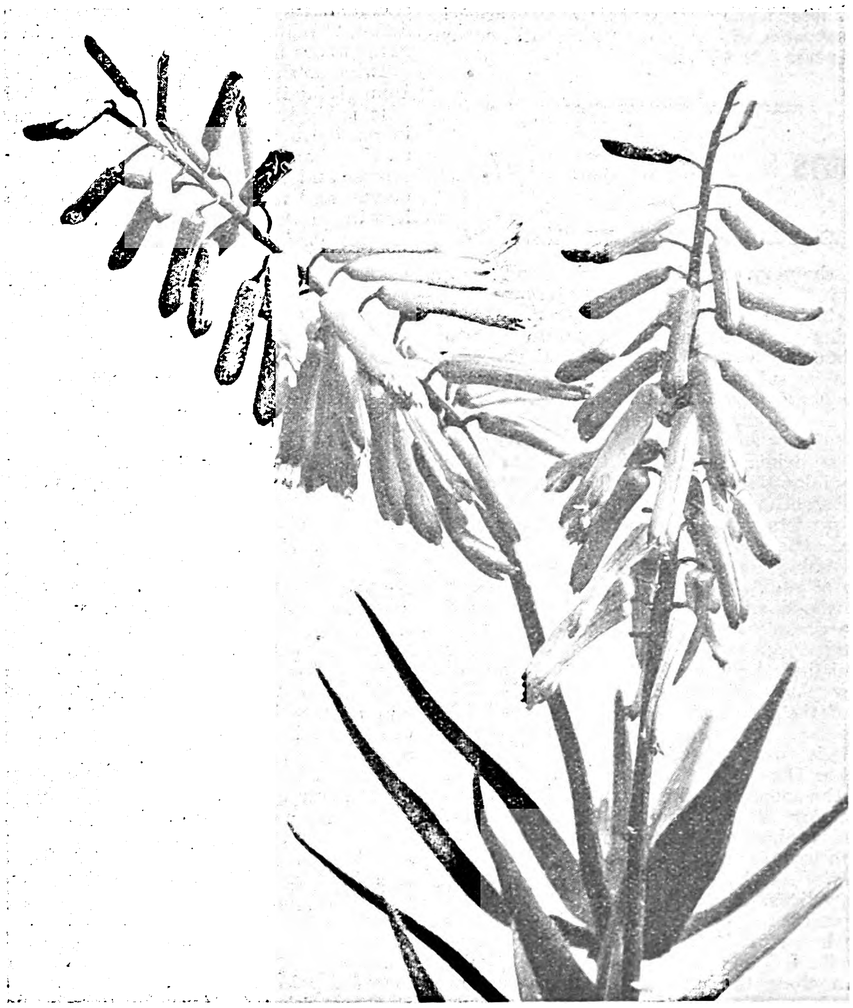


FIG. 52.—ALOE CILIARIS

R.H.S. Award of Merit, Jan. 25. Flowers bright coral red. Shown by Cecil Hanbury, Esq., La Mortola. (see p. 89).

The fact that Nomocharis has, so far, baffled many clever cultivators need not deter them and others from the pursuit of a solution of a problem hardly likely to be insoluble; rather should it act as a stimulant to further endeavour. And though it is improbable that all the available species will respond to identical conditions, the success already achieved with N. pardanthina by Mr. Kenneth McDouall in the garden at Logan, is of good augury, and may prove a finger-post for others.

Five years have passed since Mr. McDouall began the cultivation of this species from seeds collected by Farrer in 1919, and he reports that the plants have flowered and fruited annually since 1923, the capsules usually ripening in September. Last summer one plant bore eleven flowers and another ten. More interesting still from the cultivator's point of view, is that self-sown seedlings began to make their appearance a year or two since, and as practitioners know, that is a sign that the battle is more than half won. The bulbs are in deep loam with good but not rapid drainage, and there is water about the plants all the year round—the bulbs are never dry: *verb. sap.*

On the leg of Wigtonshire, which—with its toes in the Mull of Galloway—separates the Bay of Luce from the North Channel, Logan probably comes nearer to Eden than other places in Britain, but, none the less, it is possible that the cultural conditions, of which the place can hardly have a monopoly in England or Scotland, have more to do with the satisfactory growth of this Nomocharis at Logan than the moist, benign climate.

Of species other than N. pardanthina, which has not yet shown any particular liking for the place, the headquarters are at the Royal Botanic Garden, Edinburgh, where, however, neither the general conditions nor the climate are such as to suggest the possession of any especial virtue for Nomocharis. Such satisfactory results as have been achieved there in the cultivation of the genus are probably due more to the cultural skill for which the Garden is justly famed than to other factors. The difficulty with Nomocharis is in the initial stages; seeds usually germinate readily enough and the resulting crop of seedlings is regulated more by the quantity of seed than by anything else. In one way and another, many thousands of Nomocharis seedlings must have been raised in this country since the pioneer of the genus here first bloomed at Edinburgh, but the practical result has been infinitesimal. It is in the second and third year that difficulties arise in the outdoor cultivation of these things, and these difficulties are not lessened in the case of older plants grown in pots and turned out into the garden. On the other hand, cultivation in pots, in a frame or cold house, presents no particular difficulty.

---

[*] Mr. George Forrest informs the writer that his old type of Nomocharis of the Tali Range, which has changed its name from N. pardanthina to N. Mairei, often throws out stoloniferous, bulb-bearing growths from the base of the bulb, and the same character has been noticed in cultivated plants of this Nomocharis. Mr. Forrest has not noticed the same character on any of the many other species of the genus he has collected. *A. G.*

[†] E. H. M. Cox in *Farrer's Last Journey*, p. 89 (1926).

Like the tubers of certain species of Erythronium, the bulbs of some Nomocharis have a curious way of diving to the base of the pan or pot. This character, familiar enough to practitioners, is commonly advanced as a reason for deep planting. Practice has shown, however, that in our country dire failure follows any copying of Nature's ways in this respect. Bulbs of Lilium polyphyllum, for instance, are commonly found from eight to twelve inches deep, in humus, but no one in his senses would place them at that depth in this country. The corms of some of the Transvaal Liliaceae grow naturally at a considerable depth but flourish here three inches below the crust! Other instances of the same thing will occur to gardeners. *A. Grove.*

PLANTS NEW OR NOTEWORTHY.

GLOBULARIA MAJORICENSIS.

I had the very good fortune, when collecting plants in Majorca, last April, to secure one species which not only promises to be an attractive garden plant but is, I believe, quite new to cultivation. This was Globularia majoricensis, a species or sub-species, peculiar to Majorca, and even there of very local occurrence.

I only heard of this interesting plant at the very end of my stay on the island, on the day, in fact, on which I returned to Palma, after exploring inland, intending to sail on the morrow. At this eleventh hour I received a letter from one who has made a study of the flora of Majorca, telling me that on no account must I fail to visit Globularia majoricensis. It grew on a pinnacle of rock along the north coast, in the neighbourhood of Soller. The description of this rare plant was so tempting that I gladly postponed my departure and took train to the delightful little town of Soller, which is one of the show places of the island. It lies in the hollow of the mountains, a mile or two back from the sea. I have seldom visited so attractive a little town, and enjoyed there the sort of weather that the best English Junes give, with all the accompanying English June flowers —and many sub-tropical ones thrown in. I arrived in late afternoon, and immediately set out to look for the Globularia, but this first attempt was a failure and fizzled out in a valley of vines, Olives, Oranges in full blossom, and nightingales in full song, through which I groped my way home in the scented dusk. The next day I walked right out to the harbour of Soller and then along the north coast by a narrow path, which followed the precipitous coast line.

After several miles, I came in view of a most astonishing pinnacle of rock which left me in no doubt that I had found the home of the Globularia. This pinnacle rose sheer and stark like a church steeple, hundreds of feet high, one of the most dramatic rock formations I have ever seen. The base of it, which rose immediately from the path, was a very steep slope of loose stone, rock outcrops, and scrub, up which I scrambled to the roots of the pinnacle itself, and there, high up on the perpendicular cliff, I could see enormous plants of Globularia majoricensis, huge, ancient specimens, utterly impossible to approach and quite impossible to collect if one could have reached them. G. majoricensis forms large rosettes of deep green, glossy, spoon-shaped leaves, twelve to eighteen inches across. The plant has a woody base, which, in old specimens, branches and carries a dozen or so rosettes in the form of a large cushion. Some of the specimens seen must have been four feet or more across and, judging by their woody trunks, of immense age. After much creeping and crawling about the base of the pinnacle, I came upon one or two colonies of younger plants, evidently seeded down from above, growing in the scree-like ground. These I collected and packed in moss with infinite care, but I must confess I felt very doubtful of their surviving. The roots looked so hard and wiry, and carried so little fibre. However, much to my joy and surprise, they established themselves extraordinarily well, and have since shown every sign of enjoying captivity.

Although I was not there at the proper flowering season, I found one or two heads of blossom remaining. These were typical of Globularia in their rather fluffy, Scabious-like aspect; each flower-head was close upon an inch in diameter, carried on a nine- to twelve-inch stem and was of a fine lavender-blue colour.

As to the plant's hardiness, I have had it planted out in the open at Stevenage, and, so far, it has shown no signs of distress from the snaps of frost we have had this winter.

Globularia majoricensis promises to be a first-rate plant for vertical positions in the rock garden or for the wall gardens. Although growing on the north side of the rocks in Majorca, I am giving it the fullest sun possible here.

It is likely, I think, to remain a rare plant in cultivation. It might be possible to strike cuttings, or rosettes, but it is evidently a slow grower and will not produce these in any abundance, and it remains yet to be seen whether it will produce fertile seeds in this country. *Clarence Elliott, Stevenage.*

THE PROMISCUOUS PRODUCTION OF NEW DAFFODILS.

During the course of the next few weeks there will be published by the R.H.S. a new official classified list of Daffodils and Narcissi. The previous list published three years ago contained the names of some 3,500 varieties, and it is safe to predict that in the new list there will be added to these some hundreds more. Whither are we directing our course? Is it remotely possible that there exist to-day four or five thousand varieties of sufficient merit to warrant separate names? I doubt it. The most comprehensive trade list in my possession embraces about one-tenth of this number, and it may be fairly assumed that these are representative of the best available selection of all classes.

I think it would be an excellent idea if the R.H.S. could grant, quite apart from all awards of merit, a certificate of novelty! This might prove one way for a harassed, would-be collector to distinguish between a hundred catalogue superlatives. Who among us has not suffered from the purchase of highly-priced, so-called novelties at the seller's valuation? Let us suppose that two separate raisers had the good luck to produce similar flowers of apparently identically high quality. They might both be justly entitled to Awards of Merit wherever shown, but the *first* of its class shown at an R.H.S. meeting would, in addition, gain a Certificate of Novelty. Let us take as an illustration of this Croesus, produced by Mr. J. C. Williams, and Owen, raised by Mr. Watts. Not one person in five hundred could distinguish between these flowers in a mixed bunch. The only distinguishing feature to my eye is that the stem of Croesus is always lightly fluted, whereas in Owen it is smooth.

It is no more than natural that every raiser who has spent the several, or even many necessary years in producing new flowers should regard some of his geese as swans, but it is equally true that if three plants among a thousand seedlings show merit beyond that of existing known varieties, as apart from the merit of the parent stocks, he would have every reason to congratulate himself.

Each year provides a fresh sensation in size or colour or grace of form. With such achievements before our eyes it is sheer waste of time to expect to get even abreast of the times by hybridising and saving seed from the vast majority of commercial varieties. One or two exceptions may, perhaps, be made in the case of such flowers as Princess Mary, which has proved so prolific of novelties, N. cyclamineus, and possibly also of N. triandrus calathinus. This latter yields progeny of such an immensely superior stamina and form than N. t. albus that I can find no place for the latter, and I am surprised to find it so frequently cropping up in pedigrees.

There is undoubtedly a future for selected first and second hybrids of N. triandrus and N. cyclamineus as rock plants. where their graceful charms are seen at their best, but for every flower of merit there are a score of characterless weaklings which could not be singled out by their raisers if grown among others of the same class.

I do not think there can be any question of limiting the range or direction of progress in which improved forms are to be looked for. Some of the latest forms, such as Beersheba, Red Sea, Therapia, Seraglio, etc., will find their own niche in the hall of fame, ousting in due course their more modest forebears, but as one by one these flowers of new form and beauty arrive, why should it not be possible to set upon them an official seal of progress which could not be obtained by later and similar introductions, however meritorious they might be? The possession of such a certificate would indicate to a purchaser "This flower opened a fresh avenue of progress." Its absence would not in any way detract from the later awards to its successors; on the contrary, it would indicate that such award was gained in face of the known merit of existing flowers, but the absence of a certificate of novelty would indicate that other very similar flowers were already in existence!

Let this be illustrated by citing the case of White Lady, which has held its well-deserved place in our affections for (I believe) thirty-two years. It would be no whit the less popular if a Certificate of Novelty were to be accorded to Osprey, yet a catalogue description of both might easily lead the uninitiated to imagine they were identical. At present, I think Osprey stands alone, but without doubt other more or less similar seedlings will be raised, and with them the usual accompaniment of praise. Let them stand on their merits, but let Osprey and Mr. P. D. Williams have the credit for "getting there" first!

The promiscuous naming of characterless and "too-much-alike" Daffodils is much to be deprecated from every point of view—as wel might bedding Pansy seedlings be named! No two are entirely identical in height and form and date of flowering, but the general public has no room for such hair-splitting, and no interest in more than a tenth of their number. If the present practice of extravagant and superative catalogue descriptions of mediocre "novelties" be maintained, the inevitable result must be a sharp and speedy decline in the popularity of the flower, as disappointment follows disappointment. *Herbert G. Longford, Abingdon.*

NOTICES OF BOOKS.

Dahlias for the Garden.

The fifth volume in the *Gartenschonheit* series of books is on the subject of the Dahlia,* and displays all the physical features—superb illustrations, clear, bright type, art paper—which we have learnt to look for in the volumes which are issued from Akazien-Allée. In matter, also, it is in no way lacking, containing a very interesting history of the Dahlia, from the time of Hernandez's first observation of the flower in Mexico in the sixteenth century up to the present day, and comprising a number of illustrations showing the gradual development of the flower as we now know it. One of these illustrations, by the way—the Paragon type of single Dahlia, drawn by the late W. G. Smith—originally appeared in *The Gardeners' Chronicle*. A double page is occupied by a very useful collection of photographs showing the various types now known, twenty-one in all, in proportionate size—a means of ready refer-

---

**Das Dahlienbuch.* Von Karl Foerster und Camillo Schneider. Berlin-Westend, Akazien-Allée 14, Price, paper, M.6.

ence which will prove of value to all fanciers of the flower; and growers and gardeners alike will welcome the lists at the end of the book in which the varieties are grouped according to colour, size, and various other characters.

The coloured plates which occur at intervals help to brighten the volume, though it is in no particular need of extra attraction. The chief fault to be found with it is its awkward shape, almost square, and about ten inches in height. This, however, is evidently due to the exigencies of the really excellent photographs, which could not have been reduced in size without detracting from their merits, or reduced in number except at the expense of the volume as a whole. The instructions on cultivation and propagation are excellent, and are illustrated by clear diagrams; pests and diseases are adequately dealt with, and a good index completes a thoroughly attractive brochure.

Forcing by Hydro-cyanic Acid.

This booklet[*] describes some interesting experiments which have recently been carried out by Professor Dr. Gassner and Herrn W. Heuer, of the Brunswick (Germany) Botanic Garden, which serve to show that hydrocyanic acid gas, besides being a valuable insecticide, has also a definite effect in forcing certain plants into bloom before their normal flowering period. It has the advantage of taking much less time than the methods usually employed, for the plants require to be "gassed" for only a couple of hours, whereas etherisation takes normally from one to two days, and the hot water treatment from half-a-day to a day. This means that with one and the same apparatus, several batches of plants can be treated one after another on the same day. Another advantage is that the gassing can take place in any temperature; indeed, the method seems to possess so many points in its favour that almost the only thing which can be urged against it is the extremely poisonous nature of the fumes. However, if the apparatus, or forcing-chamber, is placed out-of-doors, and the plants run into it from outside on a little wheeled truck, as shown in the diagrams illustrating the text, the danger is practically non-existent. The operation cannot, of course, be done in the open, owing to the very volatile character of the gas.

The construction of the gassing-chamber is fully described with numerous very clear diagrams, and a set of photographs of plants, as treated with the gas and not so treated, showing the difference in the condition of development. The plants illustrated are Lilac, Forsythia, Prunus Avium, Deutzia gracilis and D. crenata, Lily-of-the-Valley, and Iris pumila, but probably further experiments would disclose other plants which would respond satisfactorily to the method. The authors claim for the method that it is cheap, as well as effective. It is not clear whether in making this statement they are taking into account the initial outlay of the apparatus, but it would appear that, apart from the cheapness of the actual chemicals employed, it is economical, as fewer plants are lost in the forcing process than when the older methods are utilised.

Experiments of this kind are always costly, and can seldom be undertaken by practical growers owing to the risk of loss. If the claims made by the experimenters in the present instance are borne out by experience, those growers who are able to profit by their researches will feel considerable gratitude to them for the very detailed and careful way in which they have undertaken their task, and the clear and comprehensive manner in which they have made known the results and pointed the way for others to follow.

A Foresters' Diary.

One of the most interesting of the many diaries issued in the early days of each year is the one compiled for the special use of foresters[*] and all concerned in the management of forests, woodlands and estates. Although it contains a vast amount of useful information concerning legal matters, maintainance charges, costs and sizes of transplants, planting tables, taxation, insects and fungi that attack forest trees, and timber tables and measures, it is of handy pocket size and still provides ample room for the entering of engagements and personal cash accounts.

An item of great value in the diary is the list of names and addresses of foresters and assistant foresters in Great Britain and Ireland. This extremely useful diary is gilt-edged and so sumptuously bound in scarlet covers that one is proud to use it and gardeners as well as foresters will be interested in the information it contains.

Both Mr. A. D. C. Le Sueur, who is responsible for the information given, and Messrs. E. Benn, Ltd., the publishers, have done their work admirably.

DEVELOPMENTS AT WISLEY.

As an everyday gardener with an eye to the practical in our craft, but with fewer opportunities than I would like of visiting the gardens at Wisley, recollections of an autumn visit, when I recorded some of my impressions of practical developments for the benefit of readers of *The Gardeners' Chronicle*, prompted me to make a special effort to again pay a visit to these gardens to keep in touch with the developments then so apparent.

Fortune favoured me on a sunny day in mid-January and, knowing how intensely interesting the Heath collection in the Seven Acres is at this season, my steps took me in this direction. On entering the path at the corner of the Azalea garden which leads to the Seven Acres, I realised that considerable changes had taken place here. The border between this path and the Azalea garden formerly consisted of a line of Rosa rugosa, rough grass and bulbs, with an old tool-shed at the far end, partly hidden by clumps of Bamboos. The removal of the Roses and moving of the Bamboos to form a background to the borders between it and the Azalea garden has resulted in a fine, spacious border, one hundred yards long, and varying in width from twenty feet at one end to thirty feet at the other. This extensive border is cut by two grass cross-paths leading into the Azalea garden. This presents an expansive site for herbaceous plants, where ample room is available for showing the characteristics of the larger-growing varieties and bordering, as it does, a main path leading to important collections of shrubs, gives it an ideal position.

The Heath collection, well worth a visit at any period of the year, is particularly attractive at this season, and Erica carnea King George and E. c. praecox rubra were making a very fine display, while E. c. Queen Mary and darleyensis were also very good.

A noticeable improvement in this quarter is the sowing of the paths surrounding the collections of shrubs and Lily pond with the finer grasses. A good sward is already evident, in some places down to the water's edge, and the amenities of this part of the garden are considerably enhanced.

At the extreme end of the shrub collections alterations of an important character have been effected, and a corner of intense interest created. The stream and banks dividing this garden from the Pinetum, which was overgrown with Bramble and Hazel, have been developed as a hardy Fernery, and the lower positions of the banks are already planted with many species

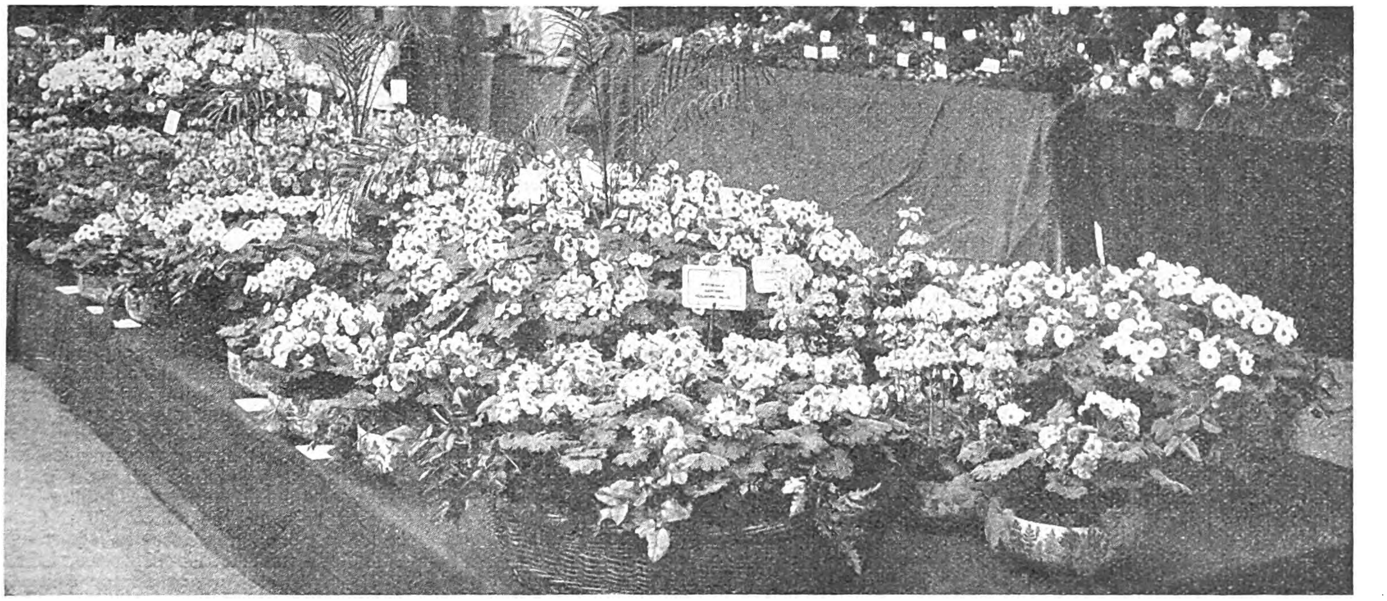


FIG. 53.—GROUP OF PRIMULAS EXHIBITED BY MESSRS. JAS. CARTER AND CO. AT WESTMINSTER ON JANUARY 25.

(see p. 89).

---

[*] *Praktische Anleitung Zum Frühtrieben von Planzen mittels Blausäure.* Von. Prof. Dr. Gassner und W. Heuer. Verlag von Paul Parey in Berlin, S.W.11, Hedemannstrasse, 10/11. Preis Rm. 2.

[*] *Webster's Foresters' Diary and Pocket Book*, 1927. Ernest Benn, Ltd., 154, Fleet Street, E.C.4. Price, 3s. 0d. nett.

and varieties. Good paths intersect the collection, giving visitors easy access to the plants and a new Oak bridge has been erected at a higher level to carry the right of way footpath over the stream, with the result that one gets an uninterrupted view to the river Wey, in which direction a continuation of these developments offers great attraction.

As one looked at this large area of flat meadow land alongside the stream, framed with a beautiful woodland belt beyond, one could not help feeling what an ideal home for many of our more recently introduced Primulas it would make. I had previously walked over the higher ground here and thought it was totally undeveloped, but on seeing considerable openings had been made, I followed the path in the direction of the stream for some distance and was surprised to find many specimens of Conifers exposed which had been completely overgrown with Bramble, Broom and Bracken.

A grass path has evidently been recently levelled, and the possibilities of further developments in this area are great. The path leads in the direction of the old fruit plantation, commercial fruit trials and Rose trials, and if future developments here connect these parts of the garden by an interesting path it will be much appreciated by visitors who now look on the public road as the necessary means of connection. Returning to the older part of the garden, I passed by the Nymphaea pond, and here also considerable alterations had been effected. The path which previously divided the pond into two parts has been entirely removed, the paths leading to the water-edge rearranged, and the pond looks bigger and more imposing.

Proceeding to the rock garden, I found that a good deal more remodelling had been done, resulting in showing up the stone to better effect and also enabling the planting of a considerable increased number of rock plants. A charming colony of Primula Winteri of outstanding merit was noticed.

The new alpine houses, which at the time of my last visit, was in the hands of the builders, is now completed and well-furnished with plants of remarkably healthy appearance, many of which are beginning their floral display. Prominent amongst these was an exceptionally fine pot of Soldanella montana, and good plants of Saxifraga Burseriana tridentina. Other plants in flower were Saxifraga Ada, S. Kellereri, S. Irvingii, S. Rocheliana, S. Sparkling, S. Riverslea, Primula Juliana, P. "purple splendens," a fine purple hybrid; P. Crispii × hybrid, and P. megaseaefolia. The house strikes one as an eminently practical one for its purpose, admitting the maximum amount of light in the short days and providing for that essential need of alpines—perfect ventilation—in a very practical way.

Many alterations are taking place in the old vegetable trial grounds near the main entrance, and this quarter is now divided into seven divisions by Hornbeam hedges. The collections of Aquilegias and German Irises are on portions of this ground, and it is obvious that flowering plants are to be grown on the whole of this area. Abutting, as it does, on the newly-planted Rose garden, which was such a success last summer, it appeals to one as a practical move for the purpose of bringing flowering plants together for the convenience of visitors who wish to study them. *Onlooker.*

APIARY NOTES.

My last notes (November 27, p. 433) may be summarised by stating that, whilst the mating of virgin queens is still a question of chance, the mating of the mother-queen is now controllable—so far as the virgin queen is concerned. I shall interpret that apparently cryptic remark as I proceed, but before doing so it may be stated that according to the November issue of the *American Bee Journal*, Mr. Lloyd R. Watson claims that he has removed the last hindrance to controlled breeding of queens by removing even the uncertainty of the virgin's mating. By artificial insemination he claims to have succeeded in fertilising virgins.

If this claim be substantiated then, by the work of Mr. Gilbert Barratt and Mr. Watson, every hindrance to "line" breeding in queen bees has been removed.

But to return to Mr. Barrett's part of the matter. Every observant bee-keeper knows that the eggs in a hive may be of two kinds. Usually the queen lays eggs in worker cells and worker bees are produced therefrom. But about May she begins to lay eggs in drone cells, and drones result. Also an unfertile virgin can lay eggs which will produce drones. Still further, worker bees can lay eggs, and these again are always drone eggs. But a fertile queen lays eggs that produce drones, and eggs that produce worker bees. Neither an unfertile virgin nor an ordinary worker can lay the eggs that produce worker bees.

It is the worker egg, then, that has come in contact with the spermatozoa of the male during its passage through the oviduct of the queen, and it is the worker egg that is fertilised by the male sperm. If it were not so, the unmated virgin or the laying worker could also produce worker brood.

Dzierzon, the great German apiculturist and scientist, in the face of this fact, propounded his famous theory that a fertile queen could lay male or female eggs—drone or worker—at will; that fertilisation consisted in the addition to the drone egg of the male spermatozoa, and that in the case of all drones there was no male parentage at all:—in other words, that the laying of drone eggs was a clear case of parthenogenesis.

As might be expected such a theory aroused great interest and much criticism. It is years since Dzierzon died, and, until Mr. Barratt published his experiments, the dispute continued. It was from a purely scientific interest in the matter that Mr. Barratt set himself to prove or disprove Dzierzon's theory. Mr. Barratt was then a professional man in Sheffield and had no thought of commencing as a professional queen breeder. I will allow him to relate the facts for himself.

"Freshly-laid drone eggs were secured. The comb containing these eggs was cut down and drones were squeezed on to a warm glass plate. The squeezing of the drone demands some practice before the spermatophore can be ejected. . . . The next operation was to touch the large end of the eggs with a camel-hair pencil previously dipped in the male sperm from the glass plate. The eggs were next placed in an incubating chamber, maintained at 97° Fahr. The transfer to artificial queen cells in the manner familiar to all modern queen brooders was then effected, these being given to a queenless and broodless stock of bees. They were duly accepted, capped over, and resulted in perfect queens, proving that the male spermatazoon had entered the micropylar aperture of the egg and produced fertilisation."

Here, then, is the solution of the hitherto insuperable problem of breeding better queens. Once allow that the virgin herself has the right blood on the mother's side (always possible) and the right blood on the father's side (never possible before Mr. Barratt's investigation), and the bee-keeper has only one uncertain factor to fight against, viz., the mating of the virgin. If this further claim from America can be substantiated, and artificial insemination is practical and practicable, then the breeding of queens becomes an exact science. Who shall say what progress may not follow? Already Mr. Barratt has given us fifty per cent. more ability to choose what our queens shall be, fifty per cent. greater chance of progress, and Mr. Watson may be about to confer on us the rest. We are eagerly waiting. The account of how artificial insemination is accomplished is being now submitted to Cornell University as a thesis for the Doctorate of Science, and we are promised by the Editor of the *American Bee Journal* the text of that thesis immediately the Senate have accepted it for the degree.

Meanwhile let us not forget that in the smoky environment of an English city, and by the pains and skill of an Englishman, the vindication of Dzierzon was accomplished. Mr. Gilbert Barratt proved himself the greatest queen breeder of the day in that he proved himself able to obtain queens that had not only a known female parent but a known male parent. The mating of the mother queen was made controllable as far as the virgin queen was concerned. Yet of all those who breed and sell queens how many avail themselves of this power; No wonder that Mr. Barratt has won for his queens such celebrity, and made such advance in those qualities desirable in a really good queen. *John Mavis.*

THE UTILITY OF POT VINES.

The value of Grape vines, when grown in pots, consists chiefly in their capabilities for supplying ripe bunches long before it would be possible to obtain them from permanent vines without unduly taxing them. They are not without value for decorative purposes, however, for when well-grown and suitably trained they make attractive objects for standing on tables or side-boards at receptions or banquets.

The propagation of vines for this purpose is best effected by raising them from eyes, but it is not wise to insert them too early in the year. Late February or the beginning of March is early enough to commence. When inserted earlier they have to be subjected to strong artificial heat at a time when light is deficient, and the canes are consequently weak and long-jointed at the base, whereas, if insertion is deferred till this time the canes make vigorous growth from the first. Do not use an excessive amount of bottom heat, but maintain a genial temperature that will be conducive to sturdy growth and to the production of fibrous roots with which it is so desirable to fill the pots at all stages. The importance of keeping the plants near the roof-glass from the time they have made a foot of growth cannot well be overstated, and so soon as they are large enough they should be placed in a position fully exposed to the light where they may be trained to the roof trellis as growth proceeds. Where it is necessary to place them between permanent or other vines, care should be taken to prevent them being overshadowed with foliage.

The proper time for repotting the plants naturally depends on the progress they make, and the only advice that can be given on this point is to suggest their being shifted at each stage so soon as the pots are filled with roots, but before they become really potbound. Generally, three shifts will be required, the first into five-inch, the second into eight- or nine-inch and the final into ten- or twelve-inch pots. A proportion of the vines will not, perhaps, make sufficient progress to require potting into the largest-sized receptacles, but as they will be valuable for growing on a second year for forcing the year following, they should receive the same attention as the others.

During the season of free growth a brisk temperature and an abundance of atmospheric moisture are necessary. The house should be closed as early as is consistent with safety and all parts of it should be thoroughly syringed. When the canes have made six feet or so of growth, they may be stopped to encourage the development of lateral shoots which should, in their turn, be stopped at the first leaf so fast as they appear. Growth should be completed early in August, and the plants having been gradually accustomed to colder conditions, may be placed outside against a south wall to ensure the wood being thoroughly ripened. The soil should be kept only sufficiently moist to preserve plumpness, and if very heavy rains occur some protection should be given to the pots. The vines should be pruned in October.

For starting in November, vines which were cut back the previous winter, repotted and started early in the spring, are best, for with good management the growth will be completed in July, and they will then have sufficient time for a thorough rest before it becomes necessary to start them again. For starting after Christmas, vines which were raised from eyes the previous spring, and have made strong growth, will be suitable.

For forcing pot-vines, low pits, adequately equipped with hot-water pipes, are best, so that plenty of heat and moisture may be readily maintained. The canes should be bent round to a point below the rims of the pots to facilitate uniform breaking of the buds. The vines should be subjected to moderate heat only in the early stages, but every advantage should be taken of sunshine to allow the temperature to rise in the day, and syringing should be done on frequent occasions. When well-started, the vines may be retied to the trellis, and so soon as it can be seen which shoots are showing the best bunches, they should be disbudded, stopping those retained at the first leaf beyond the bunch, and subsequently all lateral growths at the first leaf.

The number of bunches which it is advisable to leave on each plant depends on the strength of the cane, but generally from six to eight bunches are sufficient, and it is not wise to exceed this number.

While the vines are in flower the air should be kept somewhat drier than hitherto and fertilisation assisted by gently tapping the canes or drawing a soft brush or piece of fur over the flowers, and so soon as the fruit is set thin the bunches immediately.

The berries will swell rapidly, but care must be taken not to force the vines too hard during the stoning period. By this time they will require an abundance of moisture and rich food and, besides applying top-dressings of solid manure, liquid manure should also be given the roots until the berries begin to colour.

The compost used should be a rich one at every potting, consisting of the very best fibrous loam obtainable mixed with a little well-rotted manure, a little finely-broken charcoal, and an eight-inch potful of bone-meal to every barrow-load of compost. For the final potting a few quarter-inch bones may be scattered over the crocks. The potting should be done in the house where the vines are to be grown, taking the compost into it a few days previously to acquire the temperature of the house before use to avoid any possible check which, at any stage of growth is inimical to good results. *W. Auton.*

VEGETABLE GARDEN.

SEED POTATOS.

The selection of Potato tubers for use as sets is an important one, and one which each year seems to become more important. It is now generally recognised that the factor which has most influence on the yield of any given variety is, whether or no the stock is free from disease. Of the many diseases affecting the Potato, none is more deceptive than the one known as leaf-curl. It is because of this disease that the selection of tubers for seed purposes is so important, and it is unfortunate that there is not a good sign to help us in our selection of tubers from a sample of which we do not know the history.

The greatest aid in selection is a knowledge of how the stock behaved the previous season. It does not follow that because a stock cropped well in 1926 it will do the same if planted in 1927. Gardeners have to satisfy themselves that their stock is free from leaf-curl, and this can only be done by careful examination of the haulm during the actual growing season. The question of saving one's own seed or buying sets, is not one that can be left until lifting time, because if leaf-curl had attacked the crop late in the season, there would be little indication of the attack in the crop; for the crop was there before the leaf-curl.

The setting up of seed tubers in boxes and sprouting them is a very great help in selecting healthy tubers, but one should remember that it is only a rough and ready way of selection and at the best can only show the presence of tubers which are carrying a heavy load of infection; so heavy, that the tubers fail to sprout at all or only do so weakly. When the seed tubers have been boxed, it is important that those which are only pushing weak shoots should be removed and destroyed as early as possible. If this is not done and aphides are present on the sprouting tubers, leaf-curl will spread throughout the whole sample before the Potatos are planted.

Until quite recently there was one item of gardening operations which I felt absolutely sure about, and that item was the boxing of seed Potatos. In the past, I have had no doubt that the advantages of boxing the sets were many. I do not feel so positive about it now, and I am inclined to think that under certain conditions boxing the sets and exposing them to the light is not so good as I thought. I have a certain amount of evidence which goes to show that when the stock of seed is healthy, it reduces the crop to sprout the tubers in light before planting. It makes an interesting experiment to obtain two equal numbers of tubers drawn from a healthy strain of new Scotch seeds to sprout one lot in light in the usual way and to sprout the second in darkness; covering them with moist soil is a good way of doing it. I have found that the tubers in light are not always superior, in fact, they lose so often that I shall now plant new seed without boxing it, unless I desire to forward the crop, in which case I should box the sets and cover them with moist soil, leave them to sprout, and then plant them in the usual way. When treating the sets in this way great care has to be used when planting because the growths are more brittle than those exposed to full light, but if unbroken the brittle shoots crop best. I shall of course continue to box home-saved tubers because it is such a valuable aid in the detection of diseased and weakly tubers.

The question of a good stock of any particular variety of Potato is of great importance and is not always taken into sufficient consideration, and it is in this connection that I am inclined to disagree with the findings of certain people who run Potato trials. Plots are laid down and planted with a certain number of varieties of Potatos. The plots get the same treatment, cultivation, organic and inorganic manures; at lifting time the crop is lifted and weighed, and the results sent out. The result will probably read something like this: No. 1, King Edward, yield 7 tons per acre; No. II, Arran Chief, yield 8 tons per acre; No. III, Great Scot, 9 tons per acre. The results are often meant to read as meaning that under the conditions obtaining in that experiment, Great Scot is the best variety to grow for that particular district. I find that if instead of using three different varieties I use three different stocks of the same variety I get much the same set of figures, which appears to me to point to a valuable lesson, *i.e.*, good stocks of any variety give good crops. Bad stocks of any variety means reduced crops.

If more attention was paid by growers to the question of obtaining a good, healthy stock of seed tubers, and then to keeping the stock healthy, better all-round results would be obtained. *Somerset.*

FAILURE WITH CELERY.

I have read with interest the correspondence on Celery disease (see pp. 17, 55), and it may be of interest to your readers to know how I combat this disease and the method employed.

We grow about one thousand plants in single trenches for the convenience of spraying. One half of our plants are red, the other white, A.1. and Exhibition, respectively. The worst year for disease here was 1925; the complaint broke out about the middle of July, and, owing to showery weather at the time, spread very rapidly. After removing several barrow-loads of affected foliage, I commenced spraying with Burgundy mixture. This was continued once a week until the foliage was quite blue.

Last season the Celery was planted in another part of the kitchen garden, yet the disease appeared again during June, but amongst the white variety only. I at once commenced spraying with the following mixture:—4 lb. copper sulphate, 5 lb. washing soda, 1¼ lb soap, to forty gallons of water. Spraying was continued weekly until the foliage was blue, and the disease arrested.

Celery disease has been so bad in this district that many growers have given up cultivating this vegetable. *C. H. Harris, Old House, Coolham, Horsham, Sussex.*

FOREIGN CORRESPONDENCE.

SOYA BEANS JOINED IN PAIRS.

At one of the meetings of the Scientific Committee of the French National Horticultural Society, MM. Vilmorin-Andrieux et Cie showed some Soya Beans joined in pairs. Two such cases were observed, one in a black-beaned Soya, the other in a yellow-beaned kind. The phenomenon seems to be of exactly the same nature as that which occurs among the curious Peas with joined seeds ("Caterpillar" Peas) which were studied at Verrières (see *Comptes Rendus* de la 4e Conférence de Génétique, Paris 1911; Ph. de Vilmorin—"Etude sur le Caractère 'Adhérence des grains entre eux' chez le 'Pois Chenille'"; et A. Meunissier, "Observations sur l'hérédité du Caractère 'Pois Chenille'" (*Genetica*, 1923).

But whereas, in the Peas, this characteristic is hereditary, it does not appear to be so in the case of the Soya; at any rate, two joined Beans found formerly at Verrières on a yellow-seeded plant and sown last year, did not reproduce the character. However that may be, it is a curious phenomenon, and serves to support the thesis of Professor Vavilov, "The law of Homologous Series in Variation" (*Journal of Genetics*, April, 1922), who maintains that the same series of variations is inevitably shown in allied plants. So far as I am aware, this curious anomaly has never shown itself in any other members of the Leguminosae except Peas. It would be interesting to know if it has been observed previously in the Soya. *A. M.*

HARDY LILIES IN AMERICA.

There is a great and rapidly-growing interest in Lilies in America, much of which is undoubtedly due to the introduction of L. regale, and, the fact that it succeeds so well in all but the very warmest sections of the United States. This Lily is being extensively propagated, not only in the Eastern States but in Tennessee and other Southern States. The greatest plantings, however, are on the Pacific seaboard, especially in Washington, where the soil and climatic conditions appear to suit many Lilies. There are to-day in that State alone, a dozen growers with so many as 100,000 saleable bulbs each; one firm harvested so much as fifty pounds of seed, and a number of firms sow annually five pounds to twenty pounds of seed each, all in drills, out-of-doors. One grower from Seattle, August Swanson, informs me that from seeds sown in the spring of 1926 many of the seedlings would have flowered at the age of seven months had they not been cut down by early frost. This is better than we can do in the Eastern States, although I have flowered seedlings in thirteen months from seeds sown in cold frames early in May. L. Willmottiae, L. Davidii and L. Henryi have flowered within fourteen months under this same treatment.

The culture of both L. speciosum and L. auratum from seeds is being seriously taken up in Washington, and some of the plants have reached the flowering stage. L. candidum and some other species thrive there amazingly on land cleared of forest growth, and subsequently planted with a Leguminous crop, which is turned in before the Lilies are sown or planted. Even so uncertain a species as L. sulphureum does astonishingly well there, and L. auratum platyphyllum reaches a height of so much as fourteen feet. Splendid work is also being done at Ottawa and other places in Canada, in hybridising Lilies.

The call for Lilies which are less common than those named is growing all the time, and with this increasing demand is coming a better realisation of the needs of Lilies. In one respect we have an advantage over growers in Great Britain in the cultivation of Lilies, for though our winters in the Eastern States are much more severe, the ground remains frozen most of the time and there is usually a snow blanket, and when thaws come the water cannot percolate to the bulbs; also, while our hotter summers are a disadvantage in some respects, the brighter skies in winter ensure soils drying out much more quickly when the ground thaws out. *W. N. Craig.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Hardiness in Plants.—The remarks on hardiness in plants by *M. R.*, on p. 33, interested me, as I have always wondered why certain plants which I have seen grow and flower profusely in central Aberdeenshire—where the thermometer fell below zero on several occasions every winter during the years I lived there—will not thrive in the South of England. There was always a heavy fall of snow during such severe frost and later, in February or March, there was often 14° or 15° of frost. There were many large plants of Dielytra spectabilis in the herbaceous borders, which lived through severe winters and flowered profusely without any protection whatever. I have tried to establish this plant in the south, but have never been successful. Another plant that grows well in Aberdeenshire is Gentiana acaulis. I have seen it used as edgings round beds and borders, and when it grew too far out on to the path, we set a line down and chopped pieces off with a spade and wheeled barrow-loads to the rubbish heap. I know it is not want of hardiness that prevents this Gentiana growing here, but often I have wished I had some of the pieces which I used to throw away. There must be something in the soil which such plants as these dislike when they refuse to grow in certain districts. The winter of 1923-4 was exceptionally wet in the district where I was then residing in the West of England. There was scarcely any frost, and a batch of Chrysanthemums which had been in a border unprotected for years, was killed outright; and of a large batch of single Pyrethrums only three or four survived. It is a mistake to cut off the old stems of plants of doubtful hardiness; such plants will often come through the winter without any other protection. I recollect sending a man to tidy up a border and cut down any plants that were withered. Before I noticed what he was doing, he had cut off the foliage of a Tritoma close to the ground, which killed it completely, as it never started the following spring. *Grigor Roy.*

A Wonderful Chrysanthemum Exhibit.—A fine effort, in whatever direction, is always worthy of note and record. Remembering the magnificent exhibit that was set up at the Brighton, Hove and Sussex Horticultural Society's show at Brighton, on November 10 to 12, last, I wrote for details. This exhibit, in the Dome, was a superb effort by the Brighton Corporation, arranged by its able Parks Superintendent, Mr. B. H. Maclaren. Occupying the whole space in front of the platform, this was of a size to easily accommodate within it the band that discoursed music throughout the show days. No fewer than 1,800 flowering plants of Chrysanthemums were employed, and an approximate total of 50,000 blooms displayed in an artistic group that included 150 Palms and Dracaenas, 400 Ferns, Cyprus and other ornamental foliage plants, and 600 Abutilons. The whole occupied a space of about 350 square yards, and was probably one of the finest groups ever staged in this country. Reference was made to this in the issue of *The Gardeners' Chronicle* for November 20, and the Corporation and Mr. Maclaren are indeed to be congratulated on their remarkable and beautiful effort. *E. Beckett.*

Should New Plants be Ignored at the R.H.S. Shows?—A few years ago, Mr. E. H. Wilson wrote an article on the flowering Cherries of the Orient. In this article he praised the beauty of the red-flowered Prunus campanulata, of Formosa, and mentioned a letter he had recently received from California, in which it was stated that this, "the most richly-coloured" of all the Cherries, was one of his best introductions. Surely no commendation could be more emphatic than this! I do not know how many plants introduced by Mr. Wilson from time to time have received the Royal Horticultural Society's awards, but the number must be large. His "best introduction," however, was ignored when I exhibited two flowering sprays of it at the meeting on January 25. This, in itself, is a matter of no import, but it seems to me a regrettable circumstance that no record should be kept of the exhibition of such a rare and interesting plant. Two years ago, I sent up another Cherry which I have every reason to suppose had never been exhibited in England before. This also made no appeal to the Floral Committee. Moreover, they evidently did not consider it of sufficient interest to be shown in the main hall, for it was not to be seen when I revisited the exhibition in the afternoon. To the enthusiastic amateur who has taken the trouble to gather plants from the four corners of the earth, such treatment is certainly discouraging. Does scientific interest and rarity count for nothing among horticulturists? If the beauty of a tree or shrub is not apparent by the display of a single spray or branch under the present system, it seems to be mere waste of time and money to exhibit it. So far as the R.H.S. is concerned, whatever the intrinsic value of the whole plant may be, it passes for ever into oblivion. Would it not be possible to have a position devoted entirely to newly introduced species and a record kept of all those exhibited? It may be taken for granted that the average individual will not go to the expense of introducing plants of absolutely no ornamental or scientific interest. There are many of us who prefer the natural species to the more gaudy garden hybrids, but so long as the present system prevails, all such have no inducement to either visit or exhibit at the R.H.S. shows. *Collingwood Ingram.*

A Long-Keeping Melon.—I was delighted to see in your issue of January 15 a note from my old friend, Mr. A. J. Sanders, and feel I should like to corroborate it regarding the long-keeping Melon, as my name is mentioned as being the source whence he obtained the seed. In March, 1925, my son, who is chief engineer on the estate of Sir Lionel Phillips, Bt., Vergelegen, Somerset West, South Africa, sent me seeds of a fine green-fleshed Melon he had grown in the garden attached to his bungalow, and added remarks on its culture, stating that seeds were sown in the open ground and the plants grown the same way as Vegetable Marrows without any protection. No stimulants were given and water only until the plants were well established. The ground was well-manured previous to sowing the seeds. The plants were allowed to run at will with but little stopping and ripened a good crop of fruits which were much appreciated during the great heat of the South African summer. My son wrote me on December 22 last stating that the shade temperature then was over 100°. I still have a few seeds left from the original packet which I shall be pleased to distribute so far as they will go to any readers desirous of growing this long-keeping variety. *A. Alderman, 10, Burdett Road, West Croydon, Surrey.*

Melilotus Species.—I have three species of Melilotus growing under my charge in the Educational Gardens, Singleton, Swansea; all have yellow flowers. One of these, M. indica, is quite distinct and may be dismissed. The other two are distinct from one another and from M. alba, the white-flowered species growing by their side. The seeds of one of these was received from Messrs. Vilmorin, Andrieux and Co., Paris, and the other was collected on a waste heap. The one from Messrs. Vilmorin was named M. officinalis, and has probably been offered in their catalogue for a considerable number of years. In the course of writing out a list of our plants, I am confronted with a problem in regard to these two species. Bentham and Hooker give (1) "M. officinalis, Willd., syn. altissima, Thuill, and (2) M. arvensis, Wallr." Hooker's *Students' Flora* gives "(1) M. altissima, Thuill, syn. M. officinalis, Willd, and (2) M. officinalis, Desr., syn. M. arvensis, Wallr. *The London Catalogue* gives (1) M. altissima, Thuill, and (2) M. officinalis, Lam., syn. arvensis, Wallr., in both the 10th and 11th editions. If there is a simple solution to this I shall be very pleased to learn of it, for I have a very limited library, and in the list I am preparing I wish to mention those species which were used by herbalists, etc. In regard to these two I am still in doubt. *Cecil E. Marks.*

SOCIETIES.

READING AND DISTRICT GARDENERS'.

THE first fortnightly meeting of the spring session was held on Monday, the 24th ult., and notwithstanding the unfavourable weather, there was an excellent attendance. Mr. F. Townsend presided. The subject for the evening was "Winter-flowering Begonias," and the lecturer, Mr. C. Nippard, Ashton Court Gardens, Bournemouth, Secretary of the Bournemouth Gardeners' Association. The lecturer enumerated several ways in which these Begonias could be grown, and after giving a brief historical account of their introduction into this country proceeded to deal with their cultivation under the following headings: Propagation by leaf and stem cuttings; soils, temperatures, watering, manures and pests. The following varieties were recommended as some of the best.—Scarlet Beauty, Optima, Eclipse, Exquisite, Orange King Conquest, Gloire de Lorraine, The King, Lord Rothschild and Mrs. J. A. Peterson.

Mr. F. PRIEST, 50, Westbourne Terrace, Reading, received an Award of Merit for Cultural Skill for three varieties of Potatos.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

AT a largely attended meeting of this Society, held on the 19th ult., and presided over by Mr. Thomas Dagg, a lecture on "The History and Production of Spring-flowering Bulbs" was delivered by Mr. John Cairns. He traced the history of the Hyacinth, Tulip and Narcissus from the time of their introduction into western Europe, and commented on the improvement that had taken place in these subjects from a horticultural point of view. Dealing with the Tulip, Mr. Cairns stated that the May-flowering Caledonia had been growing for years in a private garden at Longniddry, and was brought to the notice of Mr. Jan de Graaff of Leyden, who procured bulbs and took them to Holland. The flowers were very small and of a greenish colour with an orange edge to the petals, but when cultivated in Holland it produced flowers three times the size, the green colour disappeared entirely, and it resulted in the beautiful orange-scarlet as we know it. Testimony was paid to the work of William Backhouse, a banker in Darlington, and Edward Leeds, a stockbroker in Manchester, who were eminently successful in the production of Daffodils. Among other bulbs that came under review were: Iris, Crocus, Anemone, Chionodoxa, Fritillaria, Gladiolus, Ixia, Lilium, Muscari, Ranunculus, Scilla and Begonia.

MARLOW AND DISTRICT CHRYSANTHEMUM.

THE annual general meeting of this Society was held at the Institute on Wednesday, the 19th ult. C. H. Yates, Esq., Vice-President, presided and was supported by Capt. A. H. B. Wright and Mr. J. Platt (Hon. Treasurer), while many other members were present. The Hon. Secretary, Mr. H. A. Elkington, of Oak Tree Road, Marlow, presented the Report of the Committee and Balance Sheet for 1926, which were adopted. It was agreed, after discussion, that the next annual exhibition should take place on Wednesday, November 9, 1927. A vote of thanks to the Chairman terminated the meeting.

The accounts show a balance in hand at the end of the year of £10 17s. 3d., as compared with 16s. 6d. in 1925. The improvement in the financial position is due to economies effected during the year by voluntary assistance of the officers and members of the committee, and has in no way detracted from the success of the Society. The exhibition was held at the Public Hall on November 3, and was a floricultural success, although the attendance was poor.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The Annual General Meeting of the subscribers of this gardening charity was held on the 25th ult., at Simpson's Restaurant, Strand. There were present Messrs. Leonard Sutton, P. C. M. Veitch, P. R. Barr, W. Wallace, Charles H. Curtis, A. J. Wood, Jas. Hudson, Geo. F. Tinley, A. Bullock, A. Dawkins, J. Linford, H. G. Cox, P. G. White, D. Ingamells, Ralph Bond and Geo. Gollin, O.B.E. The chair was occupied by Mr. Leonard Sutton. After the minutes of the preceding meeting had been read and confirmed, the Secretary read the Report of the Committee for 1926, as follows:—

Extracts from the Report.

The Committee have the honour to submit their eighty-eighth annual report together with a statement of receipts and expenditure, as audited, for the year 1926, and in doing so desire to express their sincere appreciation of the liberal support they have received which has enabled them to continue to carry on the beneficent work of this national horticultural charity, which for nearly ninety years has ministered to the necessities of poor and distressed horticulturists.

During the past year several annuitants have passed away, two of whom left widows whose cases having been found to be eligible and deserving were placed on the funds without election for the widow's allowance for life, in accordance with Rule III, 13. Unfortunately, the applications for permanent aid are ever increasing—there are to-day on the list for election forty-eight candidates—thirty-one men and seventeen widows, some of whom are blind and paralysed. From this number the Committee recommend the subscribers to elect twenty. They regret they feel unable to recommend a larger number in view of the financial conditions affecting all charities at the present time. It is, however, a matter for much thankfulness that owing to the "Victorian Era Fund," and the "Good Samaritan Fund" each unsuccessful candidate will receive a certain sum—up to £12—as temporary assistance for the year 1927.

During the past year fourteen persons were helped from the "Victorian Era Fund"; twenty-seven from the "Good Samaritan Fund," and ten from the "Geo. Monro Memorial Fund."

The Committee are glad to be able to report that the eighty-first Annual Festival Dinner was again held, by kind permission of the Master and Court of Assistants of the Worshipful Company of Grocers, on June 10, in their beautiful hall, when for the second time the Duke of Portland, K.G., presided, proved most successful and they desire to place on record their very grateful thanks to His Grace for his able, eloquent and convincing advocacy of the claims of charity, which brought such a substantial addition to its funds.

The Committee would also offer their sincere acknowledgments to the Worshipful Company of Grocers for their kindness; to the stewards; to the horticultural press; to the donors of flowers, etc., and to other friends who in any way assisted in making the festival a success.

The Committee are greatly indebted to the organisers of concerts, flower stalls and other entertainments on behalf of the funds, amongst whom may be mentioned Mr. Thomas H. Cook, Sandringham; Mr. W. Auton, Woking; The Worcester Auxiliary, Liverpool Auxiliary and the Committee of the Altrincham and District Gardeners' Improvement Society.

They likewise tender their warmest thanks to the Rt. Hon. Earl Beauchamp, K.G., the Rt. Hon. Lord Northbourne, The Viscountess St. Cyres, the Lady Battersea, Mr. C. W. Dyson Perrins, J.P., Mr. Roger Corbett, J.P., and Major R. W. Cooper, for again opening their beautiful gardens to the public for the benefit of the Institution.

The Committee specially desire to offer their best thanks to Messrs. Geo. Cobley, Kay and Co. (Chartered Accountants), and to Messrs. Ralph Bond, Veitch and Bilney (Solicitors), for their kind honorary services. Also to the honorary officers and committees of the several auxiliaries who work so ungrudgingly and successfully on behalf of the cause and whose services and help are so much appreciated.

The Committee have again with sorrowful and melancholy regret to refer to the large number of losses by death amongst the friends and supporters of the Institution they have sustained during the past year. They would especially mention the late Lt.-Col. Sir George Holford, a warm-hearted friend who was ever ready to help the work; the Viscountess St. Cyres, the Hon. Mrs. Eliot Yorke, Mrs. M. Monro, J.P., widow of the late George Monro, V.M.H., Rev. J. H. Pemberton, Rev. J. Jacob, Mr. W. C. Slocock, V.M.H., Mr. T. Coomber, V.M.H., and Mr. R. B. Leech, of Altrincham.

LEONARD SUTTON,
Chairman of Committee.
GEORGE J. INGRAM,
Secretary.

Mr. Leonard Sutton, in moving the adoption of the Report, offered the best thanks of the meeting to the Committee for the excellent manner in which they had managed the Institution during the past year. He said the Institution was doing a memorable work, and although there was a small attendance on this occasion, the great success of the annual festival dinners showed that a very great interest was taken in the Institution by lovers of gardens all over the country. He was glad to know that the income had been well maintained during the past twelve months, and he appealed especially for more annual subscriptions; if everyone interested in gardening would do their best, he said, the Institution would be bound to continue as successful as it had been in the past ninety-eight years. The Report was one of gladness and sorrow. It would mean pleasure for those twenty-four needy persons who would be elected that afternoon, and regret for the twenty-eight unsuccessful ones, but they would be pleased to know that the Committee found itself in the position to add two more pensioners to the list. In addition to the pensions, the Institution maintained two other funds, the Good Samaritan Fund and the Victorian Era Fund, by which the Committee was enabled to help those who were not elected and those who needed help in an emergency. There was also, he said, the George Monro Fund which last year helped ten cases which would otherwise not have been assisted. Mr. Sutton said he could not move the adoption of the Report without paying a tribute to the valuable work done by the Secretary, Mr. George Ingram, whom everybody realised had the good of the pensioners at heart. They would all regret the losses the Institution has sustained in the death of many during 1926 who had supported the fund in the past, and he especially mentioned the late Sir George Holford.

Mr. C. H. Curtis, in seconding the adoption of the Report, said it was greatly to be regretted that the Institution was not in a position to elect all the candidates, all of whom were in need of help, and especially two who were blind and two partly blind. He would like to refer to the good work done by Mr. Cook and Mr. Auton, work that could be imitated by other gardeners, in raising money by organising concerts and entertainments of a similar kind; such social functions not only helped the Institution, they were needed in quiet country districts during the dull winter season. He very much regretted to inform the meeting he had just learned that Mr. Bayford, of Davenham Gardens, who had been such a valued supporter of the Institution for many years, had passed away. Mr. Curtis congratulated Mr. Sutton on being able to occupy the chair again, and expressed the pleasure of everyone present in seeing him restored to health.

The Report was adopted without further comment. The Secretary then read the Balance Sheet, which is published on this page.

The rest of the proceedings was of a formal nature and included the re-election of officers and committeemen. Mr. E. Sherwood was re-appointed Hon. Treasurer; Mr. George Ingram, re-appointed Secretary, and the auditors were also re-elected. The retiring members of Committee, Messrs. J. Clayton, C. H. Cook, T. H. Cook, Bernard Crisp, Wm. Robinson, Joseph Rochford, E. Sherwood, A. G. Watkins and A. J. Wood, were all re-elected.

At this stage the meeting adjourned for the scrutiny of the ballot, of which Messrs. D. Ingamells, H. Cox and P. White were appointed Scrutineers. The ballot was declared about 5 o'clock, the results of which were given in our last issue on page 76.

A vote of thanks to the Scrutineers and Chairman concluded the proceedings.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION GENERAL FUND.

For the Year Ended December 31, 1926.

RECEIPTS.

	£	s.	d.	£	s.	d.
To Balance with Bankers, January 1, 1926 ...	1,583	7	0			
Balance with Bankers on Deposit, January 1, 1926	5,200	0	0			
Balance with Secretary, January 1, 1926 ...	19	3	11			
				6,802	10	11
Annual Suscriptions ...	1,101	3	6			
Donations and Legacies	4,169	0	0			
Schroeder Annuity ...	20	0	0			
Dividends and Interest ..	1,219	9	0			
Income Tax refunded for 1924/5	149	2	0			
				6,658	14	6
				£13,461	5	5

PAYMENTS.

	£	s.	d.	£	s.	d.
By Annuities and Gratuities				4,279	10	0
Rent, Fuel, lighting and Salary of Secretary and Clerk	691	15	11			
Expenses of Annual Meeting and Election ...	5	10	6			
Printing and Stationery £177 8 9 Less Advertisements 70 4 7	107	4	2			
Advertising—Fry's Charities	2	12	6			
Cheque Books	6	10	10			
Postages, Reports, Polling Papers, Appeals and Ordinary	50	6	10			
Telephone Charges ...	10	6	4			
Carriage, Telegrams, Typing, etc.	12	10	11			
				886	18	0
Repairs to Office Furniture, etc.				29	19	0
Expenses re-appointment of New Trustee ...				20	1	0
Geo. Monro Memorial Fund— Purchase of £904 11s. 8d. War Loan, 5% 1929/47				920	0	0
Purchase of £2,810 Metropolitan Railway 3½% Debenture Stock ...				1,997	4	0
Balance with Bankers, December 31, 1926 ...	1,326	8	4*			
Balance with Bankers on Deposit, December 31, 1926	4,000	0	0†			
Balance with Secretary, December 31, 1926 ...	1	5	1			
				5,327	13	5
				£13,461	5	5

*£1,250 is required to meet the quarterly payments due on December 31, 1926.

†Part of this amount is for investment in commemoration of H.R.H. the Prince of Wales' Presidency at Festival, 1924.

We have examined the attached Accounts of Receipts and Payments with the books and vouchers, and we certify that to the best of our information, they are correct.

We have also verified the Investments and the Bank Balances of the Institution.

(Signed) GEORGE COBLEY, KAY & CO.,
Chartered Accountants. (Hon. Auditors).

BRITISH CARNATION.

The past year has left the British Carnation Society in a favourable financial position, for although no great record has been made in regard to the addition of new members, the statement of Receipts and Expenditure placed before the annual meeting showed a balance in hand of £124 6s. 10d., while War Loan Stock to the value of £50 was purchased during the year 1926.

Perhaps more important than finance is the work that has been accomplished. An effort which has not been unsuccessful has been made to bring out private exhibitors, and the prize list has been augmented. Efforts have been made to induce raisers to improve the quality of perfume in Carnations, and in this connection a Gold Cup to the value of £100 has been offered by the proprietors of the *Daily Mail* for competition at the show to be held at the Horticultural Hall, on March 29 and 30, to be awarded to the best scented Carnation registered with the Society since January, 1925. This Cup should do much to enhance the important quality of perfume.

The policy of publishing quarterly *Bulletins* on Carnations will be changed to the issue of a *Carnation Year Book*, as in pre-war days.

Considerable interest taken in the Carnation overseas is proved by the frequent correspondence received, these overseas members taking more advantage of the Society's panel of experts who are appointed to answer technical questions than British members themselves.

During the past year twenty-six new varieties were registered, but the high standard required in new varieties resulted in only one Award of Merit being granted—to the variety Lady Hindlip. The policy of the Floral Committee in setting this high standard has not passed unquestioned, but has been endorsed by the majority of well-wishers of the Carnation. The Annual Report contains a few words of congratulation to their past President, Mr. W. E. Wallace, J.P., on his award of the V.M.H. (Victoria Medal of Honour) the greatest honour that horticulture can bestow. The Society is fortunate in having had a president who is universally recognised as the finest exponent of Carnation culture.

Office-bearers for 1927 are Mr. H. T. Mason, President; Mr. C. Engelmann, Chairman; Mr. M. C. Allwood, Vice-Chairman; Mr. Laurence Cook, Hon. Treasurer; Miss Bunyard, Secretary, and Mr. P. F. Bunyard (whose address is 57, Kidderminster Road, Croydon), Hon. Secretary.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, January 6: *Committee present:* Mr. J. B. Adamson (in the chair), Mr. R. Ashworth, Mr. C. Branch, Mr. A. Burns, Mr. J. Cypher, Mr. A. Coningsby, Mr. J. Evans, Mr. A. Keeling, Mr. D. McLeod, Mr. E. W. Thompson and Mr. H. Arthur (Secretary).

First Class Certificate.

Cypripedium Sumurun (*Christopher var. Grand Duke Nicholas × niveum*).—A very large flower of the niveum section, of good shape, ivory white with a pink flush, the basal half of the dorsal and petals being minutely spotted with rose. From Capt. W. Horridge.

Awards of Merit.

Odontoglossum eximium var. Royal Beauty; O. harvingtense, Towneley Grove variety; Odontioda Colinge var. Ruth; O. Vikings; Brasso-Cattleya British Queen vars. Profusion and Renown; B.-C. Penelope var. rubra; and Cypripedium Montcalm II; all from J. B. Adamson, Esq.

Cypripedium Arandora (*Selene × Leeanum var. Adrian Lefebvre*)*; C. Murillo* (*Selene × Carola*)*; and C. Sunshine* (*Desdemona × concolor*). From H. J. Bromilow, Esq.

Cypripedium Major Hanbury Carlisle (*Troilus × Lady Carlisle*), and *C. Golden Queen var. Gratrixiae.* From S. Gratrix, Esq.

Brasso-Cattleya Hercules var. Etna (*B.-C. The King × C. Luddemaniana*), and *Cypripedium G. V. Llewelyn* (*parentage unknown*). From G. V. Llewelyn, Esq.

Cypripedium Pioneer var. Dora (*Desdemona × Zoe*). From Mrs. P. Smith.

Cultural Certificates.

To Mr. A. Burns, for Calanthes in variety; Odontoglossum grande, and Masdevallia tovarensis. To Mr. J. Howes, for Brasso-Cattleya British Queen vars. Profusion and Renown and C. Dreadnought. To Mr. C. Branch, for Odontoglossum Henry VIII. To Messrs. J. Cypher and Sons, for Angraecum distichum, and to Mr. J. Evans, for Cypripedium Becktoniae.

Groups.

J. B. Adamson, Esq., Blackpool (gr. Mr. J. Howes), staged a group to which a Gold Medal was awarded; this included Cypripediums in variety, Cattleya Urbania var. superba, Brasso-Cattleya Queen, vars. Profusion and Renown, Odontoglossum eximium var. Royal Beauty, O. aspersum and Oncidium varicosum Rogersii.

S. Gratrix, Esq., West Point (gr. Mr. C. Branch), was also awarded a Gold Medal for a group that contained Cypripediums in great variety, notably C. Major Hanbury Carlisle and C. Golden Queen var. Gratrixae, with Odontoglossum Senator, O. Henry VIII, O. Orestes var. Mary and O. crispum vars. Mary Gratrix, Aramis, West Point variety, etc.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), staged a group to which a Silver-gilt Medal was awarded; Calanthes were prominent, and these included C. Veitchii, C. William Murray, C. Kenneth and C. Byron; Cypripedium Armistice, C. Hermes, C. Lady Evelyn James, C. Mrs. F. Sander, C. Caractaus var. Janet Coffin and C. Maudiae; Odontoglossum grande and Masdevallia tovarensis.

H. J. Bromilow, Esq., Liverpool (gr. Mr. W. J. Morgan), showed Cypripedium Arandora, C. Murrillo and C. Sunshine. G. V. Llewelyn, Esq., Southport, exhibited Brasso-Cattleya Hercules var. Etna and Cypripedium G. V. Llewelyn. Mrs. P. Smith, Ashton-on-Mersey (gr. Mr. E. W. Thompson), and Capt. W. Horridge, Bury (gr. Mr. A. Coningsby), also showed Cypripediums.

Messrs. J. Cypher and Son were awarded a Silver Medal for a group containing Cypripedium Cupid, C. Moonbeam, C. Boltonii, C. Actaeus langleyense, Masdevallia Hincksiana and Angraecum distichum. Messrs. Keeling and Sons staged Cypripediums, and Mr. D. McLeod showed Odontoglossum Helma.

Friday, January 21: *Committee present.*—Mr. J. B. Adamson (in the chair), Mr. R. Ashworth, Mr. A. Coningsby, Mr. J. Evans, Capt. W. Horridge, Mr. A. Keeling, Mr. J. Lupton, Mr. D. McLeod, Mr. E. W. Thompson and Mr. H. Arthur (Secretary).

Owing to the inclement weather the exhibits were not so numerous as usual.

Awards of Merit.

Odontoglossum eximium var. Northern Star and *C. Revelation* (*parentage unknown*). From J. B. Adamson, Esq.

Cypripedium President Harding (*Beryl × Lord Wolmer*) and *C. Eurybiades var. Remenham.* From A. M. Buxton, Esq.

Brasso-Cattleya British Queen var. G. V. Llewelyn and *C. Mrs. G. V. Llewelyn* (*Hannibal × Beckmanii*). From G. V. Llewelyn, Esq.

Cypripedium Aureoma, Haddon House variety (*Desdemona × aurea*). From Mrs. P. Smith.

Odontioda Nada, Beardwood variety. From Col. Sir J. Rutherford, Bt.

Cultural Certificate.

To Mr. J. Howes, for Odontoglossum eximium Northern Star.

Groups.

J. B. Adamson, Esq., Blackpool (gr. Mr. J. Howes), was awarded a Gold Medal for a group of Odontoglossum eximium var. Northern Star, O. Cobbiae, O. Thora, Cypripedium Revelation, C. Maudiae, C. Vashtii, C. Leeanum Gurney Fowler, C. Memoria F. M. Ogilvie varieties The King and The Premier, Lycastes of the Skinneri section; Odontioda Charlesworthii; Xylobium leontoglossa and many other good things. Col. Sir J. Rutherford, Bt., Blackburn (gr. Mr. J. Lupton), was awarded a Silver Medal for a group containing Odontoglossum Queen Alexandra, O. Grand Duke Michael, O. ardentissimum var. Johnsonii, O. loochristiense var. R. le Doux, Odontioda Nada, O. Beardwood var. Colinge and O. Charlesworthii.

A. M. Buxton, Esq., Wilmslow (gr. Mr. Pask), staged Cypripedium President Harding, C. Eurybiades var. Remenham, C. Lady Dillon and C. Thompsonii hybrids with Miltonia Bleueana. G. V. Llewelyn, Esq., Southport, showed Brasso-Cattleya British Queen var. G. V. Llewelyn and Cypripedium Mrs. G. V. Llewelyn. Mrs. P. Smith, Ashton-on-Mersey (grower Mr. E. W. Thompson), exhibited Cypripedium Aureoma, Haddon House variety.

Messrs. Charlesworth and Co. sent Cypripedium Mrs. Alfred Hanbury, C. Renown, Odontoglossum Ithone, O. Muralie and Odontioda Acis. Messrs. Keeling and Sons, staged Cypripediums in variety.

Obituary.

James Udale.—Death is taking heavy toll of veteran horticulturists, and it is our painful duty to record the death of Mr. James Udale, who passed away at Droitwich on January 28. Born at Uttoxeter, he was employed at numerous important places, such as Oldfield Hall Gardens, Uttoxeter; the Barrowash Nurseries, Derby; the Garston Vineyards, Liverpool; Worksop Manor, and Lilleshall House Gardens, Shropshire. His first position as gardener was with Sigismund Cohen, Esq., at Manchester, a shipping merchant, who made a hobby of Orchids and imported specimens direct from South America. It was while in this position that Mr. Udale's ambition was fired and ere long he decided that a much wider knowledge of plants was necessary to fit him for more important positions. He obtained an appointment at Kew, where he eventually became sub-foreman of the Orchid department, and acquitted himself in other directions. From Kew he went to take charge of Sir H. Watson's gardens at Shirecliffe Hall, Sheffield, where he remained for eleven years before becoming gardener and clerk of the works on the Elford Estate at Tamworth. Here he had a fine opportunity, and made the most of it, but, unfortunately, his health gave way. In 1891 he was appointed Lecturer in Horticulture for Worcestershire, and he served this county admirably for the rest of his life, taking especial interest in the working out of trials and tests concerning fruit trees and vegetables. A man of fine presence, great natural ability and forceful character, he combined a wide horticultural knowledge with the ability to demonstrate that knowledge by means of lectures and contributions to the press. Over a very long period he was a frequent contributor to *The Gardeners' Chronicle*. Mr. James Udale, who was seventy-six years of age, believed himself to be a descendant of the famous Dr. Uvedale (often spelt Udale) of Enfield, the first known cultivator of the Sweet Pea in England, and after whom Uvedale's St. Germain Pear is named.

ANSWERS TO CORRESPONDENTS.

Cypripedium Blooms turning Brown.—*W. T.* The cause of the Cypripedium blooms failing to develop is probably due to one or the other of the reasons given below, but it is impossible to give a definite reason from your letter. Have fumes from the gas stove entered the house? Has the stove gone out, whilst the house and the plants were in a saturated condition? A low temperature heavily charged with moisture might be the cause. We advise a higher temperature and drier conditions in the house; a temperature of 50° is not sufficient to develop Cypripedium flowers to perfection, especially during dull, damp weather.

Gardener's Wages During Illness.—*H. W. and Wondering.* The question really turns upon whether the incapacity caused by the illness is permanent or temporary. Permanent incapacity in a servant caused by illness justifies the master in treating the contract of service as at an end; but temporary illness does not put an end to the contract, and the servant is entitled to his wages during his absence through temporary illness, provided that the contract of service remains in existence during that time, and that he is ready and willing to carry out his duties save for the incapacity produced by the illness.

Communications Received.—G. H.—H. F.—W. H. M.—S.—W. H. J.—W. C.—J. H. W.—S. D. (Thanks for 1/ for R.G.O.F. Box).—H. H. W.—E. R.

THE
Gardeners' Chronicle
No. 2094.—SATURDAY, FEBRUARY 12, 1927.

CONTENTS.

Alpine Garden—
  Bellis rotundifolia coerulescens ... 112
  Erigeron mucronatus 112
  The massing of plants in rock gardens ...112
Black Currants, the eradication of big bud of 107
Celery, an amateur's... 119
Economic plants of the Bay Islands ... 117
Flower garden—
  Antirrhinums ... 112
  Cynoglossum Blue Gem 112
Forestry census, authenticity of ... 107
Freesia, a new disease of 118
Fruit register—
  Plum Diamond ... 118
Fungi as an international problem ... 119
"Gardeners' Chronicle" seventy - five years ago 100
Hardy flower border—
  Baptisia australis... 113
  Stokesia cyanea purpurea 113
  Veronica longifolia subsessilis ... 113
Hurry, Dr. J. B. ... 108
Imperial War Graves Commission ... 109
Indoor plants—
  Gesneras 113
  Panax 113
Manchester Parks and Cemeteries Department's Society ... 108
Mesembryanthemum . 116
Obituary—
  Vuylsteke, Charles 122
Orchid notes and gleanings—
  Caladenia filamentosa 113
Plants for large beds, special 115
Societies—
  National Chrysanthemum 122
  Royal Horticultural 120
Soil physics 114
Trees and shrubs—
  Philesia buxifolia ... 112
  Prunus microlepis... 112
  Rhododendron dauricum 112
Trenching, deep ... 119
Vegetable garden—
  Early Carrots in frames 118
  The Leek 118
Ward, Capt. F. K. ... 107
Week's work, the ... 110
White fly, fumigants for 119
Woodland garden—
  Saxifraga granulata 112

ILLUSTRATIONS.

Black Currant gall mite 109, 110, 111
Caladenia filamentosa 113
Grape Fruits shown by Cecil Hanbury, Esq. 117
Hesperis matronalis plena in Hyde Park, a bed of ... 115
Hurry, Dr. J. B., portrait of 108
Muiria Hortenseae 116

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39·4°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 9, 10 a.m. Bar. 30 5. Temp. 36°. Weather, Fine.

The Eradication of Big Bud of Black Currants.

WE are accustomed to regard the investigations carried out at East Malling as models of what horticultural investigations should be, and this attitude is confirmed by the study of Mr. Massee's brief account* of that vexatious and expensive pest, the big bud mite (Eriophyes ribis), which is in no small measure responsible for rendering plantations of Black Currant unfruitful. Mr. Massee's experiments appear to show conclusively that it should be possible, in future, and at almost negligible cost, to eradicate this pest, or, at all events, so keep it under control that the mite shall cease from serious troubling. Like all sound pieces of work on plant pests, Mr. Massee's is based on a thorough exploration of the habits of the pest. In the course of this exploration, he found that the mite, which as Fig. 54 shows, exists in vast numbers in the big buds, remains in unapproachable seclusion during the greater part of the year. But in the spring " wanderlust " overtakes it as it overtakes so many forms of life, and the mite sallies forth from its fastness and finds fresh quarters—generally on neighbouring Black Currant bushes. Before, however, it finally deserts the bud in which it was brought up, the mite browses awhile on the surface of the bud. This habit it is that has led to its undoing by the able hands of Mr. Massee. If, as he rightly argues, the mite, lingering for a last lick of the big bud from which it has just found release, can be fed on food mortal to it, it will migrate not to another bush, but to another world. A pabulum which produces this lethal effect is lime-sulphur, and, therefore, if the application of lime-sulphur (one part to eleven of water) be properly timed, the trouble will be scotched, because the mite which works it will have been killed. So long as the enemy is within the leafy walls of the bud, lime-sulphur is powerless to harm it; but when the mite emerges from the partly-opened bud, the layer of lime-sulphur deposited by spraying the bushes a little while before that time will suffice for its destruction. The remedy has often been advocated and applied before, but it proved only partially successful because of faulty timing. It is because he has found the joint in the mites' armour and has observed the moment at which to pierce it that Mr. Massee deserves our thanks. Anyone who studies the illustration in Fig. 54 may see for himself when that moment occurs. Some time between the last week in March and the second week of April—according to season and variety—the flower- and wood-buds of the Black Currant open. Just after the flower trusses have appeared and before the flowers themselves have opened is the proper time to spray. Lime sulphur applied then destroys, as Fig. 56 shows, the swarming multitudes of mites. It must be remembered, however, that remedies are rarely perfect. In the present case, the imperfection of the remedy is due to several facts. In the first place, some stragglers are bound to be left. In the second place, some buds may not open till much later; for, beside the ordinary big buds, the bigness of which is the sign of the presence within of the mite, other buds showing no sign of bigness may also harbour them. It is for this latter reason that other methods of eradication have so often failed; for example, hand picking and cutting back in alternate years, methods which we, ourselves, have often tried without any large measure of success. It is due to this also that nurserymen, no matter how vigilant they may have tried to be, have, in fact, often been in the past unwitting agents in despatching the mite about the world. Now, however, anyone who allows his plantation to become infested—and infested it will become in a few years, even though only one bush were infected originally—deserves to be regarded as a pest himself. For systematic spraying with lime-sulphur at the right time will keep the mite under sufficient control to prevent it destroying the fruitfulness of our plantations and those of our neighbours. For this, as for so much other help in time of trouble, our thanks are due to the East Malling Experiment Station. It would be a graceful act if all who profit by this advice were to express their appreciation by becoming members of the Kent Incorporated Society for Promoting Experiments in Horticulture, of which Society East Malling is the Research Station.

Imports of Nursery Stock into Canada.—The Destructive Insect and Pest Act Advisory Board of the Department of Agriculture, Canada, states that the Board's inspectors at ports of importation are having considerable difficulty in identifying and checking consignments of nursery stock, owing to the fact that the containers of the shipment are not properly marked. The regulations under the Destructive Insect and Pest Act (Canada) demand that upon each container (unless the shipment is forwarded by parcel post) there be marked the following information: 1, name and address of consignee; 2, name and address of consignor; 3, kind or kinds of nursery stock contained, and quantity of each; 4, the permit number. Failure to comply with this regulation may result in shipments being detained at the port of importation. The shipper should always secure the permit number before forwarding the shipment. The handling of shipments by the Board's inspectors will be greatly facilitated if the information required is placed upon either end of the container, rather than on a side, etc.

Compensation for a Gardeners' Widow.—Mrs. Alice Wood, widow of the late Mr. C. H. Wood, who died as a result of an abrasure of the skin while cutting a tree in Tooley Street, London, in November last, has had a claim for compensation registered at the Southwark County Court for £535 16s. 0d., on the 27th January. The claim was made on her behalf by the National Union of Corporation Workers, of which Union Mr. Wood was a member. A staff collection on behalf of Mrs. Wood realised over £35.

A Clever Viennese Business Woman.—During the present month of February, the fortieth anniversary is being celebrated of the entry into business of a clever Viennese woman, Frau Chlebecek, who has developed and brought to an outstanding success a business which scarcely existed until then. In February, 1887, her brother, August Denk, opened a shop in the New Market, Vienna, for the printing, in letters of gold, of messages on the ribbon bows which are used for tying funeral wreaths and flower sheaves. These large bows, with their gilt letters, are so little seen in this country that it is difficult to imagine the industry ever attaining such proportions as it has reached in Vienna, largely, if not entirely, owing to the industry and perseverance of Frau Chlebecek. After twenty-four years in the New Market, she was in a position to take larger premises in the Köllnerhofgasse, where the business is still conducted.

Capt. F. Kingdon Ward.—Our readers will be pleased to learn that Capt. F. Kingdon Ward has returned safely from his ninth plant-collecting expedition in eastern Asia. He is in good health notwithstanding several unpleasant experiences, including the depression that comes to a solitary white man while sojourning in a country where the rainfall is almost incessant. Most of his collections have now reached this country, while many seeds sent previously are already in the hands of those directly interested in his expedition. In our next issue Capt. Kingdon Ward will resume the story of his travels and describe the more important plants he found.

Authenticity of Forestry Census.—In his presidential address to the Edinburgh University Forestry Society, Lord Clinton surveyed the history of British forestry and remarked that the nation had not even now fully recognised the real necessity of a forest policy. He saw the gravest dangers in the proposals which were not infrequently made that the work of the Forestry Commission should be transferred to a Government Department under a political head. He could imagine nothing that would be more fatal to a continuous policy. Towards the close of his address, Lord Clinton stated that the census of production and the census of woodlands had been completed. The figures showed that in England and Wales the area under woodlands was approximately the same as in the previous census taken by the Board of Agriculture in 1913, but in Scotland there appeared an increase of 200,000 acres. Knowing the large area cut during the war and the lessened activity in planting owing to increase of taxation and break-up of estates, it was difficult to reconcile that increase with one's own knowledge. He had reason to doubt the accuracy of the present census, and if an error existed it was probably due to some inaccuracy in the previous return.

Horticultural Club.—Over forty members and their friends were present at a dinner and lecture of the Horticultural Club on Tuesday last, at the Trocadero Restaurant, Piccadilly Circus. Mr. W. B. Cranfield presided, and Mr. H. Cowley, editor of *Gardening Illustrated*, gave an address, illustrated by lantern slides, entitled " A Vagabond in Majorca." Mr. Cowley made the journey for the special purpose of finding Paeonia Cambessedesii in its native habitat. He gave a very interesting account of his trip and described the scenery and industry of the island. In some of the valleys, such as that of Soller, the vegetation is luxuriant, and the scenery most delightful. The inhabitants are principally devoted to agriculture, and Mr. Cowley stated that although they adopted very primitive methods, they obtained excellent results. Majorca is the largest of the Balearic Islands and belongs to Spain, but others, such as the Romans and Moors, have left their influence on this old-world place, which the lecturer stated was several centuries behind the rest of Europe. Amongst the many excellent illustrations thrown on the screen was one showing the method of irrigating the land by means of water raised from a well by a mule or donkey, a device that could be traced back to the Moorish occupation of the island. Mr. Cowley was fortunate in finding, at Alcudia, an English resident, Capt. Munn, with a beautiful garden, for the climate is favourable to almost all kinds of sub-tropical and temperate plants, although the inhabitants express wonder why any person should grow flowers and not vegetables. One of the most delightful pictures showed Ramondias growing vertically in crevices in little caves, where they are shaded from the hot sun. Although he searched for the well-known Arenaria balearica Mr. Cowley only found very few plants, and yet in our gardens it spreads so freely as to become a nuisance. The old Olive trees, which were said to have been introduced by the Moors, have gnarled and contorted stems, yet, curiously enough, the upper part makes a compact head and the trees fruit freely. The Aleppo Pine, Pinus halapensis, is a conspicuous feature of the scenery and in some parts there is sufficient timber to support a charcoal-making industry ; photographic slides showed the charcoal burner's primitive dwellings made with straw supported on poles. Mr. Cowley exhibited lantern slides of some wonderful plants of the Paeony he especially sought, and he also showed pictures of Helleborus corsicus, Chamaerops humilis, Dictamnus Fraxinella, Eriobotrya aponica and Urginea maritima, which is officinal, and planted by the inhabitants amongst sickly trees of Olives and others in the belief that they help to restore them to health. At the conclusion of the lecturer's address, Mr. Peter R. Barr related his experiences of a visit to the island and recommended all who could to visit Majorca, for no more delightful place could, he said, be chosen for spending a holiday than this old-world island.

---

* East Malling Research Station. *Annual Report*, 1925. The Control of Black Currant Mite, by A. M. Massee.

Sale of Leeds Castle, Kent.—Leeds Castle, near Maidstone, with its surrounding estate, has been sold by Mr. Fairfax Wykeham-Martin and his trustees to Mr. and Mrs. Wilson Filmer. The present mansion is about one hundred years old, but it stands on a site on which there have been fortifications from a very early date, and its records are continuous from the days of the Norman Conquest.

Arsenic on American Apples.—A Middlesex greengrocer has been fined £1 and costs for selling American Apples " containing " arsenate of lead. Mr. Robinson, who prosecuted on behalf of the Middlesex County Council, stated that the publicity given last year should have caused American Apple growers to minimise the use of arsenic spraying, but they had not done so ; in the case dealt with the amount of arsenic present was ·05 grains per lb., while lead was present to the extent of ·56 grains per lb. He warned greengrocers that all American Apples should be washed and cleansed before being offered for sale. This was sound advice, but it seems to us the powers that be should not admit American Apples unless they are free from arsenical deposit ; most troubles and difficulties are best dealt with at their source.

Sad Death of a Young Gardener.—James Hall, an employee in the gardens at Haystoun House, Peebles, the residence of Sir Duncan E. Hay, was found dead on the 7th inst., having been overcome by gas fumes while stoking a furnace. He was only sixteen years of age.

Dr. J. B. Hurry.—For many years before going to live at Bournemouth, Dr. Hurry grew a large and interesting collection of economic plants at Reading, some in demonstration plots and others under glass. In addition, he formed a collection of products illustrating the economic value of the plants he cultivated. These collections were open to the public on half-holidays and Sundays, and were frequented by a large number of interested people, including children. Dr. Hurry's main purpose has been to emphasise the importance of studying the economic plant together with the product it contributes to the service of mankind, and this purpose was abundantly fulfilled in the garden and museum at Westfield, Reading. Dr. Hurry considers that local authorities possessing parks and pleasure grounds should, for educational purposes, allocate a small plot for hardy, and a glasshouse for tender, economic plants, and arrange a small museum of Economic Botany adjacent to the Economic Garden. He has pointed out that the necessary expenditure need not be heavy. Of course, every plant should be labelled correctly with its English and scientific name, its Natural Order, habitat, and the product that makes it useful to mankind. The fine collections Dr. Hurry formed he has now presented to the Reading University, where the economic products will form a museum of Economic Botany that cannot fail to be of great interest and educational value. The collection is housed in a separate room which has been added to the Museum, and was officially opened by Dr. Hurry, on Tuesday, January 25. A thoroughly useful catalogue has been compiled in which the various stages are arranged under (*a*) miscellaneous food products ; (*b*) Nuts ; (*c*) fibres ; (*d*) woods and barks ; (*e*) gums and resins ; (*f*) medicines, and (*g*) dyes. In each case there is a brief description of the particular subject, its popular, as well as its scientific name, and usually a few particulars regarding the use of the particular product and the native habitat of the species concerned.

DR. J. B. HURRY.

Bequest to a Gardener.—The late Lord Bearsted, of The Mote, Maidstone, left an annuity of £100 to his gardener, Mr. William Bacon.

R.H.S. Scholarships.—A scholarship of the value of £50 a year for two years is offered in alternate years by the Worshipful Company of Gardeners to be awarded on the results of an examination designed to test the candidates' ability to profit by a course of instruction in horticulture. The questions will not be confined to horticulture. Candidates must be of the male sex and between the ages of eighteen and twenty-two years on October 1, 1927. The scholarship will be tenable for two years, of which at least the first year must be at the Society's School of Horticulture at Wisley. The second year may, in certain circumstances to be approved by the Council and the Worshipful Company of Gardeners in each instance, be spent in education elsewhere. Candidates must either have obtained a school-leaving certificate or have been already engaged in horticulture for at least two years before October, 1927. In the intervening years a similar scholarship will be offered by the Society. A Scholarship of £30 a year for two years, established by Sir James Knott, Bt., is also offered for award on the same conditions. Candidates must be able to produce certificates of good character, and must be of good health and physique, free from any physical defect that would militate against a career as a gardener, and willing to subject themselves to the rules for students at Wisley. In 1927, the examination will take place from 6 p.m. to 9 p.m. on Wednesday, May 4th. It will be held in as many different places in the British Isles as circumstances may demand, provided that a magistrate, clergyman, schoolmaster or other responsible person accustomed to examinations has signified, by signing the candidate's entry form, his willingness to act as supervisor. Any candidate who wishes to do so may take the examination at the Society's offices, Vincent Square, S.W.1, where arrangements will be made by the Society. Candidates must enter their names on or before March 31, 1927, with the Secretary, Royal Horticultural Society, Vincent Square, London, S.W.1, from whom entry forms may be obtained. An entry fee of 5s. must be sent with the completed form. Four scholarships, tenable for two years, carrying remission of fees and a maintenance grant up to £85 a year (depending upon circumstances) are also available at Wisley for young gardeners with at least three years' experience in private gardens or nurseries, and appointments to these are made after due consideration of experience, attainments, and other circumstances. Two scholarships are available to commence in October, 1927. Candidates should send in their applications before August, 1927, on forms which (with further particulars) may be obtained from the Director R.H.S. Gardens, Wisley, Ripley, Surrey.

Manchester Parks and Cemeteries Departments Society.—So far as our experience goes, the only public parks department with a Society for the furtherance of its own interests is the one at Manchester. The staff of the Parks and Cemeteries Department of the City of Manchester numbers some seven hundred, and Mr. W. W. Pettigrew, the Chief Officer, is President of the Society, while Mr. J. Williams, in charge of Birchfields Park, is chairman, and Mr. L. E. Morgan, N.D.H., Hon. Secretary and Editor of the *Journal*. There are weekly meetings of the Society and special classes are arranged to afford educational facilities for the young men, the various subjects being taken by thoroughly qualified men who are in charge of the various parks ; many of the young men are coached for the R.H.S. examinations. Once a month a special meeting is held in the Mayor's Parlour, when a lantern lecture is given and Mr. Pettigrew presides. Lectures during the 1926-7 session have been given by Mr. F. W. Parker, Deputy Chief Officer, Parks Department, L.C.C. ; Mr. T. Hay, Superintendent of Hyde Park ; Dr. G. H. Carpenter, the Museum, Manchester University ; Mr. A. S. Galt, Leeds University ; Prof. O. T. Jones, Manchester University ; and Mr. Charles H. Curtis, Managing Editor of *The Gardeners' Chronicle*, who gave a lecture on " A Horticultural Journalist's Year " on Wednesday, February 2nd, when the audience numbered over one hundred. The concluding special lecture will be on " Kew Gardens : their History, Work and Value," by Mr. J. Coutts, Assistant Curator, Royal Gardens, Kew, on March 2. The Society is composed of and managed by the staff of the Parks Department and is, we believe, unique in this respect ; we do not forget the Kew Gardeners' Mutual

Improvement Society, but this is attached to a garden that comes under a Government Department; the Old Chiswick Gardeners' Society was attached to the R.H.S. Gardens, and gardeners other than Chiswick men were admitted, but the Manchester Society is on different lines to either of these and is doing a splendid work that, fortunately, the City Council thoroughly appreciates and encourages.

Scottish Nurseries Damaged by the Storm.—The hurricane which swept over Scotland on the last Friday of January caused a vast amount of destruction in nurseries and market gardens situated in the western and midland areas where the velocity of the wind was at its maximum. At Kippen Nurseries over 5,000 square feet of glass were demolished, and the wooden frame-work of houses broken, but, fortunately, the big vine escaped, none of the three houses in which it is accommodated being damaged beyond the loss of a few odd panes of glass. At the Ellenbank Nurseries of Messrs. Scott Brothers, five Tomato houses, each measuring 200 feet long and fifteen feet wide, were completely destroyed. The houses occupied an elevated and exposed position and, as showing the fury of the storm, the ironwork which supported the roof, the base of which was sunk into two feet of solid cement, were torn up, twisted and broken, while the cement was forced into the air. Two other growers in the district had all their glasshouses blown down and they are left without a square foot of glass at the beginning of the Tomato season. At Messrs. Austin and McAslan's, Cathcart Nursery, the large house containing Rhododendrons, Azaleas, etc., was wrecked.

William Willett Memorial.—The scheme to acquire Pett's Wood, Chislehurst, as a memorial to the late Mr. William Willett, the founder of Summer Time, has materialised, and the committee has purchased nearly the whole of the eighty-seven acres of the wood, leaving only sixteen acres of frontage land, which can be obtained later, as the owner has agreed to withhold it from the builder so that if further funds become available the money can be applied in its purchase. The seventy-one acres already acquired are being conveyed to the National Trust, and will be opened to the public when Summer Time commences again.

Potato Trials in 1927.—The National Institute of Agricultural Botany is now prepared to accept entries for its sixth series of yield and quality trials of new varieties of Potatos from breeders who are willing to entrust the Institute with the marketing of their productions on a profit-sharing basis. The trials are planned to last for five years, at first in Scotland only, but in the later years also in the English Potato districts. Only those varieties which do sufficiently well in the trials will be placed on the market. Full particulars of the conditions of the trials are given in a form of agreement, which can be obtained from the Secretary, National Institute of Agricultural Botany, Huntingdon Road, Cambridge, to whom those intending to enter new varieties for these trials should apply, not later than February 28, 1927.

A New Azalea Disease in Germany.—Attention is drawn in *Blumen und Pflanzenbau* (vol. XLI, pp. 166-167) to a serious leaf disease which broke out in Azaleas in a market garden at Munich in 1926. The disease, which is attributed by Mr. K. Flachs to the fungus Septoria Azaleae, so severely crippled the foliage that very large numbers of plants were rendered unfit for sale. It, moreover, weakens the plants and the new growth is much impeded. Two varieties were particularly affected, namely, Madame Petrick and Madame Aug. van Damme, both of which had been imported from Belgium the previous autumn. The disease was also found in other nurseries, and has been known to exist in Germany for several years previously. So a far as we are aware this fungus is not known in England, but it is obvious that gardeners should be on the alert against a disease which may cause serious trouble. We shall be glad to examine any specimens submitted by our readers.

London Square Gardens.—A paper on the subject of the London Squares was read at a meeting of the Surveyors' Institution on February 7, by Mr. Frank Hunt, in the course of which he stated that over forty Acts of Parliament had been passed relating to the management and maintenance of the gardens. Mr. Hunt further stated that the largest square in London was Cadogan-place, Chelsea (7·43 acres), others in order of size being Lincoln's Inn Fields (6·84), Eaton Square (6·33), Russell Square (5·91), Park Square, St. Marylebone (5·59), Belgrave Square (4·73), and Grosvenor Square (4·44).

Imperial War Graves Commission.—Capt. E. C. Symons asks us to state that, owing to reduction of staff, the Imperial War Graves Commission has been compelled to dispense with the services of one hundred and forty gardeners. In all cases these men are leaving entirely owing to the necessary reduction in staff and the Commission would be most grateful to any employer who can offer any of them employment. Many of these men have been employed by this Commission for some years and can be vouched for both as to qualifications and personal character. Some are married and some are single men, and come from all parts of the country. Prospective employers should apply to Capt Symons, Re-employment Committee, Imperial War Graves Commission, 82, Baker Street, London, W. 1.

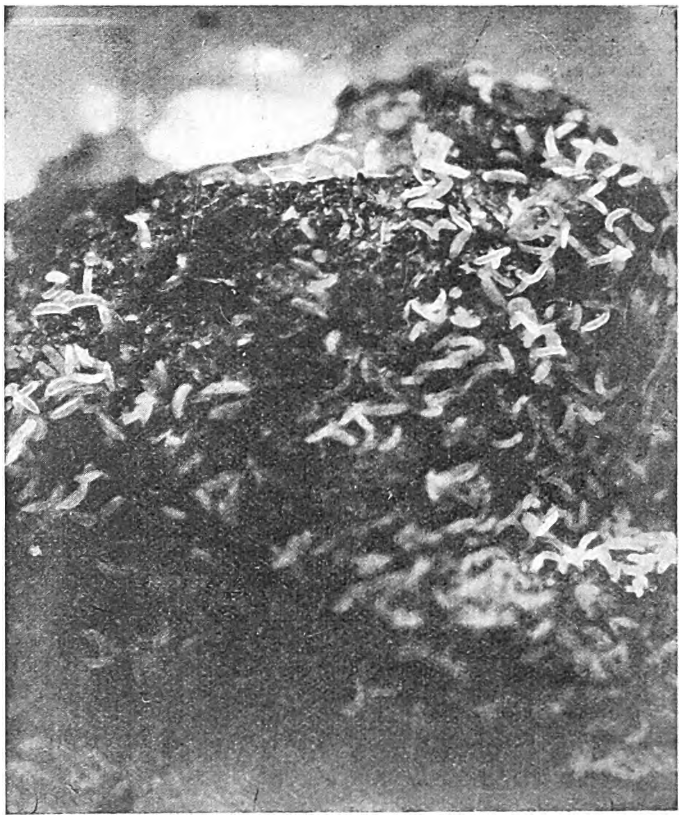


FIG. 54.—BLACK CURRANT GALL MITES MIGRATING FROM UNSPRAYED "BIG BUD." (see p. 107).

Reproduced by permission from the *Annual Report* of the East Malling Research Station.

Bequests to Gardening Charities.—The late Mr. Walter C. Slocock, of Goldworth Nurseries, Woking, left £244,398, and in addition to bequests to numerous employees and local charities, he left £250 to the Gardeners' Royal Benevolent Institution and a similar amount to the sister charity, the Royal Gardeners' Orphan Fund.

Appointments for the Ensuing Week.—MONDAY, FEBRUARY 14: United Horticultural Benefit and Provident Society's meeting; Guildford and District Gardeners' Association's meeting. TUESDAY, FEBRUARY 15: Winchester Horticultural Society's meeting. WEDNESDAY, FEBRUARY 16: Royal Gardeners' Orphan Fund's annual meeting at Simpson's Restaurant, Strand. THURSDAY, FEBRUARY 17: Ipswich Gardeners' Association's meeting; Wallington Horticultural Society's lecture. FRIDAY, FEBRUARY 18: Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Luminous Fungi.*—As I was returning home, on foot, late in the evening in October last, I saw a light before me in a part of the road which an avenue of thick overhanging trees made particularly dark; I took it at first to be a lantern hung up against the side of a cart or waggon; but, on going up to the spot I found that the light came from a piece of half-decayed bark attached to the trunk of a tree, that was lying there on a timber carriage, that had been left for the night by the road-side. The brightness was sufficient to have attracted my attention from a considerable distance. Some few days after this, my children, near the same spot, found a piece of luminous (inner) bark, which they brought home, and exhibited it in a dark corner of a room. The piece of bark was 2 or 3 feet long by some 10 inches in breadth, and from its whole surface a bright phosphorescent light was emitted. The appearance was very striking and beautiful. Many saw it, and all were equally struck with the phenomenon. It has a very strong fungus-like smell. In the course of a few days the moisture dried away, and with it, the peculiar smell and light disappeared. I have put some pieces of it into a mushroom house, with a hope of again exciting the growth of the Luminous Fungi.—*J. D. Llewelyn, Gard. Chron. February* 14, 1852.

Publications Received.—*Florida Wild Flowers*, by Mary Francis Baker; price 12/6 net.—*My Garden Comes of Age*, by Julia H. Cumins; price 12/6 net. Both published by Macmillan and Co., St. Martin's Lane, W.C.2.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Phaius.—P. grandifolius, P. Blumei, P. Wallichii and the numerous hybrids of this family are sending up their flower spikes, and the roots may be given a little weak liquid manure occasionally. When the flowering period is over, and new growth commences, any necessary repotting may be done; similar compost to that advised for Zygopetalums will be suitable. When growth is complete, and during the plant's season of rest, only sufficient water should be given to keep the compost just moist. The plants should not be exposed to direct sunlight during their growing season, as their thin leaves are easily scorched.

Zygopetalum.—Such species as Z. Mackayi, Z. crinitum, Z. Ballii and others of this section which produce their flowers from the partially-made pseudo-bulbs, should be repotted, if necessary, as they pass out of flower. As the two former species produce large, succulent roots, they need rather large pots, which should be well-drained, as when in full growth the plants require an abundance of water. A mixture of fibrous loam, Osmunda fibre, peat fibre and Sphagnum-moss, in equal proportions, with sufficient broken crocks to render the compost porous, forms a suitable rooting-medium for all these species, and the hybrids derived from them. For the more delicate growers, the amount of loam fibre may be reduced. The newly-potted plants should be watered with extreme care, as an excess of moisture may mean the deterioration of the plants. The bi-generic hybrid, Zygocolax, which is the result of crossing Colax jugosus with different species and hybrids of Zygopetalum, succeeds under precisely the same conditions, but, being plants of a smaller nature, the pots in which they are grown should be in accordance with the size of the plants. Thrips are the greatest enemies of these Orchids and must be eradicated, as if they are allowed to disfigure the young foliage, the growths seldom recover from the check. Colax jugosus succeeds under the same conditions, but needs a humid atmosphere when in growth, with drier conditions when at rest.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Jerusalem Artichoke.—This vegetable is generally of inferior quality through being planted too thickly. Allow a space of three feet between the rows and not less than eighteen to twenty inches between the sets. Plant the tubers now in well-prepared ground, and choose the white variety in preference to the pink or purple kind.

Rhubarb.—The crowns of Rhubarb are now moving, and to ensure well-bleached stalks place either pots, barrels or deep boxes over them, and pack litter on and around the covers. Should the stalks be required quickly, fermenting material, consisting of manure and leaves mixed together and used in sufficient bulk, will give the necessary warmth to attain this result. The latter method has a weakening effect on the crowns and should not be practised annually with the same plants.

Exhibition and Early Leeks.—To obtain exhibition or early Leeks the seeds should be sown now, either in boxes or small pots, the latter for preference if the Leeks are required for exhibition, as by this means the plants receive no check in transplanting. Sow about four seeds in a three-inch pot and, when well-advanced leave only the best plant which, when sufficiently strong, may be placed in a larger receptacle without undue disturbance.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Clerodendron fallax.—This plant may be propagated either from cuttings or seeds. The seeds should be sown now to produce good flowering plants for next autumn. Where a stock is raised from cuttings, the old flowering plants should be cut back slightly, stood in a moist atmosphere and syringed regularly. Shoots suitable for use as cuttings will soon be forthcoming, and they will root easily in a propagating frame. They should be taken when about three inches in length.

Bouvardias.—A young stock of these plants may be raised by placing some of the old plants that have been cut hard back in a warm, moist house. With frequent syringings they will soon break into growth, and, when the shoots are about three inches long, they may be used as cuttings, which will root readily if placed in a warm propagating frame. Bouvardias may also be raised by means of root-cuttings, and for this purpose some of the old plants should be shaken out, the stoutest roots cut into pieces some two or three inches long, and the pieces dibbled in sandy soil, either in pots or pans. The root-cuttings should be treated as recommended for growth cuttings, but some varieties propagated from root-cuttings do not come true to colour. Mite is sometimes troublesome to Bouvardias and should be eradicated by the use of Campbell's sulphur vaporiser.

Hydrangea Hortensia.—Plants that were propagated last autumn from strong, well-ripened shoots may now be started into growth with a reasonable chance of their flowering. When it is seen that the young growth is active they may be transferred to their flowering pots; forty-eight-sized pots may be used for the stronger plants, while fifty-four's will be suitable for those that have made less robust specimens. Careful watering is necessary at this stage, but when in full growth Hydrangeas require ample supplies of water supplemented by frequent applications of liquid manure. Large specimens that have been stored in a cool place to provide a succession of bloom should be examined occasionally, for when they show signs of activity they must not be allowed to become dry. Hydrangeas require a fairly rich compost, and where it is desired to obtain blue flowers the mixtures recommended for the purpose should be used in the early stages of growth in strict accordance with the makers' instructions.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Root-lifting.—The lifting and root-pruning of unfruitful trees, the roots of which have grown downwards into the cold subsoil, may still be done. At this season it is better not to be too severe when carrying out this work. Young trees may be lifted entirely, but in the case of older and larger ones only half of the roots should be disturbed at this period, leaving the other half to be done next autumn.

Arrears of Planting.—In favourable weather endeavour to complete all arrears of planting. If the land is of a heavy texture scatter a few shovelfuls of dry earth amongst the roots, and do not trample the soil too firmly, but leave the firming of the ground until the conditions are more favourable.

Loganberries.—There are many ways of growing and training the Loganberry, and considering how useful the fruits are and how much they are appreciated, the plants should be given every care and attention to produce the best results. This fruit is not at all particular as to the nature of the soil and the position in which it is grown. Loganberries may be planted and trained on wires, poles, fences, or old buildings, where the growths have plenty of room for extension. Remove a few inches of the surface soil and substitute fresh earth from another part of the garden.

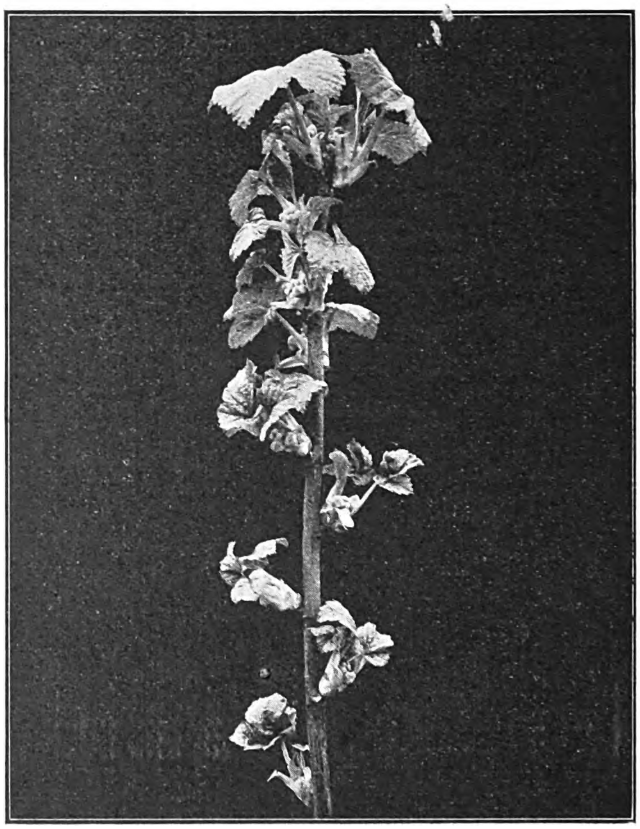


FIG. 55.—BLACK CURRANT GALL MITE.

Shoot of Baldwin Black, showing the period at which lime-sulphur spray should be applied to the bushes. (see p. 107). Reproduced by permission from the *Annual Report* of the East Malling Research Station.

Grafting.—Make preparations for any grafting that is to be done this spring; prepare the tree for the reception of the grafts later, but do not shorten the branches too severely. The selected branches on which the grafts are to be placed may range from two or more feet in length. All grafts should be labelled correctly and heeled in on a north border until the time for grafting arrives. In grafting trees that have been headed down the method known as cleft grafting is the most suitable.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Pears and Apples.—These fruits are a great success under glass and produce fruits of enormous size and superb flavour. The impression prevails that they will not respond to fire-heat at any period of their growth, but this is hardly borne out by facts, as the finest fruits may be grown where the temperature ranges much higher than in the open, but they do fail when the soil is stagnant with moisture and an insufficient supply of fresh air is given them. A house in which one can feel fresh air moving will suit these fruits in average seasons, and once the pips are formed the development of the fruits may be hastened by closing the house early for a few hours on fine afternoons. The chief details in their successful management is gentle warmth from the pipes, liberal feeding and abundance of fresh air.

Pot Vines.—If the bunches were reduced to near the requisite number for the crop before they came into flower, and those retained have set their berries, the latter should be thinned without further delay. Do not pinch the laterals too drastically as the Grapes increase in growth, rather encourage leaf-development as it will help to improve the size and colour of the berries, always bearing in mind that good, healthy main leaves are preferable to surplus lateral growths. After the Grapes are thinned and swelling freely apply rich top-dressings of old turf, bone-meal and a suitable vine manure to the roots, and feed them also with weak liquid manure, as the soil in the pots will by this time be almost exhausted. Take advantage of sunny days to forward the crop, but do not let the night temperature exceed 63° to 65° on cold nights, and 65° to 70° on mild ones. Syringe all available spaces and keep the evaporating pans filled with diluted liquid manure, which should not be too strong or it will injure the delicate leaves. Ventilation will need careful attention to obviate giving the vines a check, and the small amount of air admitted at night should be discontinued in the morning to favour a rise in the temperature before the house is syringed. A little air may be admitted when the thermometer reaches 75°, and increased or reduced as the case may be until the temperature stands steady at 80°. Close the house in time to ensure a rise to 85° when atmospheric moisture, aided by gentle warmth from the pipes, will favour rapid development of the foliage and berries.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Aquilegias.—The many fine strains of the long-spurred Aquilegia are ideal for furnishing beds and borders, as well as for supplying cut blooms. The finer strains require a long growing season to obtain good plants for setting out-of-doors during the autumn. Stand the seed-boxes in a greenhouse or cold frame, and when the seedlings are fit to handle, prick them out into shallow boxes. They should be grown on in cold frames until large enough, when they should be hardened off, and planted in the reserve garden.

Clematis.—As these plants are showing signs of growth they should be pruned and made tidy. All the Jackmannii varieties which flower on the current year's shoots, may be cut back to within a few feet of the ground especially if they are used to furnish walls or trellis work. If, however, they are trained into thin-growing trees—which is the ideal method of using the stronger-growing varieties—the pruning should not be so severe. Old Apple trees and the common Laburnum make excellent supports for Clematises, in fact, many other thin-growing trees may be made to serve this purpose. The varieties belonging to the lanuginosa and patens sections require different treatment, as they flower on shoots developed from the old wood. In their case, pruning usually consists in cutting out dead shoots and shortening the live ones where the plants have covered their allotted space; they require very careful handling as the shoots are very brittle and easily damaged. When planting Clematis, the sites should be prepared carefully, efficient drainage being essential. Well-decayed manure and old mortar rubble should be incorporated with the compost. The plants are usually purchased in pots, and in planting them the soil should be shaken from the thong-like roots so that the latter may be spread out when planting them. Although the heads should be exposed to the sun, it is essential that the roots have at least partial shade. Clematis montana and its varieties are spring-flowering plants and when it is desired to prune them it should be done immediately after they have finished flowering.

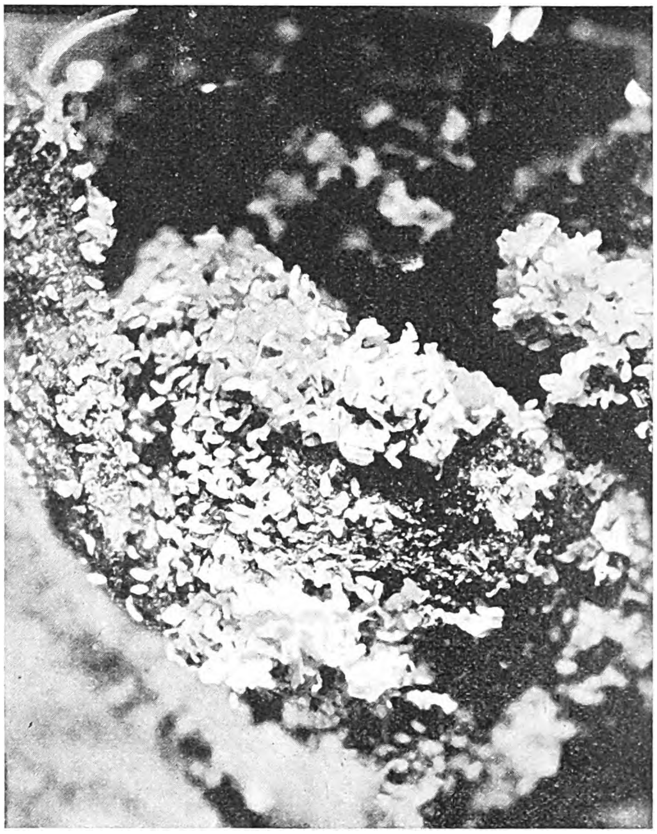


FIG. 56.—BLACK CURRANT GALL MITES KILLED BY LIME-SULPHUR SPRAY (see p. 107).

Reproduced by permission from the *Annual Report* of the East Malling Research Station.

Herbaceous Clematis.—The herbaceous section of Clematis includes numbers of species and varieties which are very useful for furnishing lawn beds or grouping in the herbaceous border. C. heracleaefolia and its variety Davidiana are very useful for filling moderate-sized beds; there are also two beautiful hybrids of French origin, viz., Campanile and Oiseau Bleu, the former especially being very beautiful with its spire-like inflorescence of pale blue flowers. C. recta, C. integrifolia and the hybrid Hendersonii are all useful plants for the herbaceous border; the last requires some suitable support as it attains a height of eight to ten feet. The slender-growing and beautiful C. coccinea should be tied to a slender cane, and is best planted at the foot of a warm wall.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Pot Pelargoniums.—Where a batch of Zonal Pelargoniums is wanted for next winter's display the cuttings should be inserted this month around the edges of pots in a sandy compost. The varieties grown are numerous, and many single as well as double sorts are available. So soon as these cuttings are rooted, they should be potted singly and grown on until the pots are comfortably filled with roots, when the plants should be moved into larger receptacles and grown under cool conditions. They should be transferred to their flowering pots during June and grown in frames during the summer, from which, in fine weather, the sashes may be removed, and the plants actually grown in the open air. All flowers should be regularly pinched off, and the leading growths stopped as necessary until September, when the plants will require to be taken indoors and given a sunny position in a house having a temperature of 50° at night. A compost of loam, leaf-soil, sand, and a small quantity of bone-meal is all that they require. but when the pots are well-filled with roots the latter may be fed regularly with artificial or diluted liquid manure.

Bedding Plants from Seeds.—Large numbers of the plants used for bedding are raised annually from seeds, and the sowing of these in boxes under glass should be done early so that the seedlings may have time to become robust before planting time arrives. Among such plants, Antirrhinums are important, and they give a display of colour during the summer and autumn at little trouble and expense. Other plants include Lobelias, Ageratums and Begonias, especially the fibrous-rooted section, which include such beautiful sorts as Crimson Bedder and Fairy Queen, which may be treated as annuals with excellent results. Dahlias of various kinds, and many others of a like nature, if sown now, provide a range of bedding plants unknown to a former generation.

ALPINE GARDEN.

BELLIS ROTUNDIFOLIA COERULESCENS.

THIS very charming little Daisy is an admirable plant for a sunny ledge in the rock garden where the soil is free and gritty. It makes a neat rosette of its almost prostrate leaves, which are silvered with a grey down, and yields the summer through an unbroken succession of blossoms in a lovely shade of clear lavender-blue.

The flowers, like the foliage, are about the same size as those of our common field Daisy, and the plant is certainly not less prolific in flowering. Indeed, few choice rock garden subjects can be relied on to afford such a long season of blooming as B. r. coerulescens. Though it slowly makes an ever-widening clump, this Daisy does not " run " and become troublesome in that way. *J.*

ERIGERON MUCRONATUS.

IN many rock gardens Erigeron mucronatus becomes a weed, and where it succeeds must be kept from choking other plants with its seedlings. In other gardens, unless in a wall, it often succumbs in wet winters.

This Erigeron is of rather trailing habit and has pretty leaves on branches about nine inches or less in length which also bear a number of red and white, small, Daisy-like flowers.

E. mucronatus is easily raised from seeds, but may also be propagated by division or from cuttings. *S. A.*

THE MASSING OF PLANTS IN ROCK GARDENS.

IN planting alpines in large pockets it is necessary to consider a colour scheme and to make arrangements for a varied display over the whole of the season in the different parts of the rock garden. In some cases two plantings may be made in one season. Blue Primulas or other early flowers may be followed by Cynoglossum amabile, which blooms from August onwards.

Subjects specially suitable for massing are Æthionema grandiflora (twelve plants will make a fine group), Gentianas, Geraniums, Anemone Hepatica, Lithospermum, Mertensia, Potentilla, Primula Juliae and its variety Gloria ; Achilleas, Alliums (with another subject) Androsaces, Anemones, Arenarias, Armeria Vindictive, Aster alpinus, A. sub-coeruleus, Aubrietias, Calceolaria polyrrhiza, Campanulas, of which the variety G. F. Wilson is one of the best ; Cheiranthus Allionii, Cyclamens, Dianthus, Epimediums, Erinus, Iberis, Incarvilleas, Orchis foliosa, Œnothera, Onosma, Pentstemon heterophyllus, Phlox subulata in variety, Plumbago Larpentae, Polygonum affine, Prunella Webbiana, Saponaria, Silene, Trollius, Veronica and Violas.

It is advisable to keep all the encrusted Saxifrages in a collection, and they show to best advantage on a south or west slope with the larger sprays of flowers tumbling over the rocks, while the mossy varieties may be placed in other parts where they will have sufficient moisture and cool conditions.

Sedums may be associated with the encrusted type of Saxifraga in the drier parts of the rock garden and in places where few other plants would grow ; another useful subject for this purpose is Genista sagittalis, which produces a mass of yellow flowers.

Helianthemums, planted with Indigofera Gerardiana, two feet to three feet apart, are very effective near a water-pool or stream. Mimulus, in these gardens, has survived the severest of winters, and, contrary to the usual practice, is planted on a fairly steep slope facing west.

If a bog garden is made in conjunction with an extensive rock garden it should be proportionately large, and it is well that it should be planted in breadths of colour. This may be provided by planting Iris laevigata, Primulas, Spiraeas (Astilbes), Trollius Orange Globe, Ranunculus aconitifolia, Rodgersias, Orchis, Roscoea cautleoides, Ourisia coccinea, Cimicifuga simplex and Cardamine. *A. J. Hartless, Kings Walden Bury Gardens, Hitchin.*

FLOWER BORDER.

CYNOGLOSSUM BLUE GEM.

IT must be more than a decade since seeds of this biennial were offered for sale, yet, so far, the plant is not very generally grown. Those who appreciate a soft, saxe-blue colour should procure Cynoglossum Blue Gem to supply this pleasing tone in the garden throughout the month of June. When grown in the border, this Hound's Tongue must be renewed each year, as the plants die after flowering. Cynoglossum Blue Gem is not difficult to grow, yet there are a few cultural details which should be followed if good results are to follow.

To secure large plants, seeds should be sown thinly in the open border early in June and the young plants transferred to their flowering stations in October. Plants treated thus—when grown in good soil—will throw up from nine to twelve flowering stems, from eighteen inches to thirty inches high, which will commence to expand their numerous and dainty flowers early in June, and continue to make a display for several weeks. One might imagine that by sowing seeds in August, a batch of plants could be secured for a later display the following year, but there is not the slightest difference in regard to flowering between the plants raised in June and those raised in August ; but, there is a decided difference in the height and number of flower stems, as the late-raised plants produce one flower stem each, which attains to only half the height of those sent up by the June batch. *D. A., Midlothian.*

ANTIRRHINUMS.

THE many beautiful varieties of Antirrhinum are easily raised from seeds sown at this time ; the seeds should be scattered thinly in boxes, and will germinate quickly in a warm greenhouse.

When fit to handle, the seedlings should be pricked off into boxes, and in a few days they may be transferred to cold frames. When they are about three inches in height they should be hardened off and planted out in the nursery garden. When lining them out, place a sprinkling of flaky leaf-soil about the roots ; they may then be lifted with good balls when required. Lack of space has compelled me to adopt this method, and with reasonable care I find that they transplant perfectly, even when coming into flower.

Plants that were raised during the autumn for blooming early should be hardened off for planting out next month.

EAST LOTHIAN STOCKS.

THESE Stocks are very useful for bedding purposes, and the seeds should be sown without delay, taking care to sow them thinly, as the seedlings are very liable to damp off if crowded. For the same reason they should be pricked off before they are crowded in the seed boxes. *J. Coutts.*

WOODLAND GARDEN.

SAXIFRAGA GRANULATA.

THE meadow Saxifrage is a native plant that is worthy of more attention from the gardener than it at present receives. It succeeds well in almost any position, damp or dry, in sun or in shade, and even under woodland conditions it flowers profusely. As a subject for the rock garden it is not by any means to be despised.

The pure white, slightly drooping flowers are produced on erect, branched stems, six to eighteen inches in length. They are about one inch in diameter and are borne several on a stem in April or May. Propagation is most easily effected by division of the root-stock, which is composed of a cluster of tiny tubers that root freely around the parent plant.

A double variety, known as S. granulata flore pleno, is often met with under cultivation but although the flowers of this last longer, it has not, in my estimation, the dainty charm of the type. *T. H. Everett.*

TREES AND SHRUBS.

RHODODENDRON DAURICUM.

THE Dahurian Rhododendron is a native of Siberia and is the earliest species to open its flowers ; these are of a bright rosy-purple hue, and appear in January and February, often when the ground is covered with a mantle of white.

R. dauricum forms a somewhat upright shrub, five or six feet in height, and the shoots are clothed with glossy green, rounded leaves.

The plants vary a good deal in the extent to which they retain their leaves through the winter, some being quite deciduous and others semi-evergreen. A variety known as sempervirens has this evergreen character most pronounced and the flowers are usually of a somewhat deeper colour than those of the type ; they are rather saucer-shaped, and about one-and-a-half inch in diameter.

Although hardy, it is advisable to give this Rhododendron as sheltered a position as possible in order that the flowers may not be unduly exposed to inclement winter weather. Planted to form a small group, it forms a charming feature when little else is in bloom in the open garden. *T. H. Everett.*

PRUNUS MICROLEPIS.

IN 1916, we received a plant of this Prunus, and since then it has grown into a fine, bushy tree about five feet high and about as much through. At the present time it is covered with a mass of its semi-double, drooping flowers, of a pale pink shade, which develop on twiggy, horizontal branches, making a very light and pleasing display when seen in suitable light with the darker foliage behind them. The tree commenced flowering before the leaves had fallen, and at Christmas it was full of flower, and the subject of enquiry by all who visited the garden at that time. Last winter it was in flower from November to April, there being flowers amongst the young foliage.

I find the blossoms open quite as well after 10° of frost as during milder weather. The moistness of our climate here seems more detrimental to the flowers than cold. The flower buds open well in the dwelling-house and remain fresh for a long time, and are thus valuable for decoration as cut sprays in winter. *R. W. Norman, Trelissick Gardens, Truro.*

PHILESIA BUXIFOLIA.

THIS remarkable shrub never fails to appeal to those who have a special regard for rare and interesting plants. It is a native of Chile and was introduced in 1847 ; it belongs to the Liliaceae, but at first glance its foliage rather suggests a Yew. It makes tough, red-brown, woody stems of about one foot in height ; the short branches of these are rather sparsely furnished with alternate, deep green leaves of a leathery texture, with glaucous under-surface. The leaves are an inch or more in length, about two-eighths-of-an-inch in width, and sharply pointed. In curious contrast to the rather dull foliage are the tubular flowers, which are fully two inches in length and of a rich crimson, very much like those of Lapageria.

In my garden, P. buxifolia is tolerably content with a bed of leaf-mould and gritty loam in a cool, partly-shaded spot. It spreads slowly by running underground, sending up spear-like shoots which suggest those of a Ruscus. The plant appears to be quite reasonably hardy, and is often exposed here to 15° of frost without injury.

The late Mr. E. C. Buxton grew this plant well in his garden at Bettws-y-Coed. The bed was almost entirely composed of peat, and it was situated on the north side of a large Yew, only getting sun in full summer, and that for a brief space in the evening. The ground being rather dry, water was copiously supplied during the growing season.

P. buxifolia may be increased by division ; portions taken with a good mass of soil transplant very successfully. *A. T. Johnson, Ro Wen, Conway, N. Wales.*

INDOOR PLANTS.

PANAX.

Panax Victoriae and P. Balfouri are the most commonly cultivated species of the two distinct types of this genus of ornamental foliaged shrubs.

P. Victoriae is an old, one-time-popular stove plant of graceful habit, forming a neat, dense bush of finely variegated, white and green foliage. P. Balfouri is stiffer in appearance. The undivided, orbicular leaves are deep green, margined with white, and three inches or four inches in diameter.

These plants thrive under ordinary stove treatment, requiring heat and moisture during the growing season, but cooler and drier conditions when at rest.

Bottom heat is essential for their successful propagation, which may be effected from root-cuttings, portions of the stem, the sucker-like growths from the base of old plants, or half-ripened shoots taken when a few inches long. *F.*

GESNERAS.

Gesneras are among the most beautiful of our decorative indoor plants, for they have very beautiful flowers and beautifully-marked foliage.

Seeds should be sown from January to March in well-drained pans, containing a porous compost of fibrous loam and leaf-mould, mixed with equal parts of peat and silver-sand. Fill the pans to within half-an-inch of the top and soak the soil thoroughly before sowing the seeds. Sow thinly and cover the seeds lightly with fine silver-sand. Place the seed-pans in a temperature of from 60° to 70° and arrange a sheet of glass over the pans, keeping the soil well shaded from bright sunshine until the seeds have germinated. When the seedlings are large enough to handle, prick them off into pans or boxes containing a similar compost. Keep the atmosphere close for a few days until the plants are re-established. When the seedlings have made from two to three pairs of leaves shift them into sixty-sized pots and return them to their former position, placing them as near the roof-glass as possible, but free from cold draughts. Keep the plants shaded from direct sunshine, as the foliage at this stage is very tender and easily scorched.

Having become well-established in these pots, transfer them to six-inch or seven-inch pots, in which they will flower. The compost for this potting should consist of equal proportions of fibrous loam, peat and silver-sand, to which may be added a little finely-broken cow manure. After potting them, place the plants in a house having a temperature of 60° to 65°, on a bed of moist ashes. On no account use the syringe for Gesneras, as water in nearly all cases contains lime in solution and this, if allowed to deposit on the foliage, would greatly disfigure the plants. When the stems have attained from five inches to six inches in height, they should be staked neatly, as the fleshy leaves are liable to snap off down to the level of the pots. When the plants are well-established give the roots weak liquid manure about once a fortnight, but take great care not to overdo this as Gesneras do not respond to liberal feeding. When the flowers show signs of expanding, grow the plants in a slightly lower temperature to prolong the season of flowering. When blooming is over, gradually withhold water until the foliage dies down. Place the pots on their sides under the plant stages in a cool house until they are required for starting into growth again. Having been sufficiently rested, they may be shaken out of their pots and grown on in the same way as recommended for seedlings.

By starting successional batches of corms, Gesneras may be had in flower practically all the year round.

Thrips are frequently troublesome and should be destroyed by fumigating the house. Mealy bug may be kept in check by using a stiff camel-hair brush dipped in methylated spirit, applying this specific to the infested parts. Sponging is not to be recommended as the foliage is easily broken. *E. Baker, Garston Manor Gardens, Near Watford, Hertfordshire.*

ORCHID NOTES AND GLEANINGS.

CALADENIA FILAMENTOSA (R. Br.)

(Syn. C. filifera, Lindl. and C. denticulata, Lindl.)

Caladenia filamentosa (Fig. 57) is a very quaint spider-like, terrestrial Orchid, with deeply-coloured, very attenuated segments to its blossoms. It is fairly common in damp soils beneath the shade of sparse-leaved, evergreen trees in the "thin" forest regions of New South Wales, Victoria, South Australia, Western Australia and Tasmania. The districts which it inhabits are much like our park lands, consisting of fully-developed trees, thinly scattered over undulating grassy country, therefore this plant is not a lover of dense shade. In its native country it commences to blossom in December.

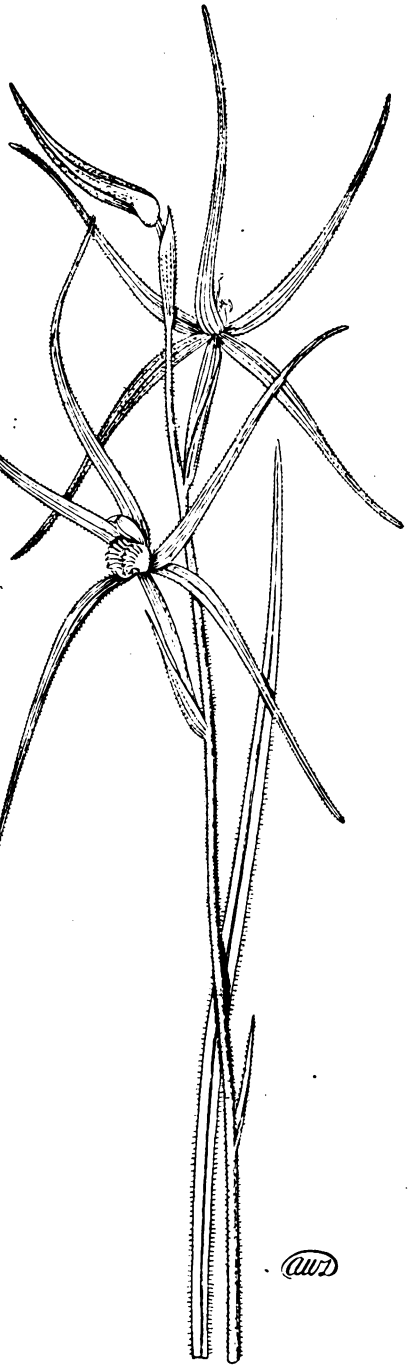


FIG. 57.—CALADENIA FILAMENTOSA.

The root-system consists of a stout white underground stem, about two inches in length, terminating in two tubers about the size and shape of the kernel of a Hazel-nut. The larger tuber supplies the nourishment for the growing plant and shrivels after the seeds have ripened, the other tuber eventually produces next year's plant, although at times it lies dormant in the soil for two years, thus accounting for its abundance one season and paucity or even total absence the next in its native habitats.

The leaf which springs from the base of the stem at soil level exactly resembles a blade of grass; it is from three to five inches long and about an eighth-of-an-inch in width; its edges are fringed with long, spreading hairs; in colour it is pale yellowish-green, shaded with purple towards its base. The slender, red-tinted, flexuous flower stem is from six to nine inches tall, and is clothed with long, spreading hairs; there is a narrowly linear bract about one inch long near the middle of the flower stem and one at the base of each flower stalk.

The blossoms are one or two, rarely three, in number, and are widely separated on the stem; their segments, spreading out like the rays of a star-fish, are well over three inches across. The petals and sepals are about equal in length, very narrowly linear in shape, tapering towards the apex, where they are blunt; they vary in colour from deep crimson to dark reddish-brown, and the backs of the sepals are covered with short, glandular hairs. The white, crimson-striped lip is about half-an-inch in length, three-lobed; the centre lobe is long, pointed, and curves under; the side lobes are upright and bluntly-toothed; there is a double row of tooth-like processes down its centre, which, like the sticky, glandular hairs on the back of the sepals and on the bract at the base of the ovary, offer an almost impassable barrier to the crawling, but not to the winged, insect, for whom the plant secretes the nectar in the base of the flower and relies on for the cross fertilisation of its blossoms.

Like so many terrestrial Orchids of the temperate regions of the southern hemisphere this species of Caladenia is somewhat difficult to cultivate in this country, owing mainly to its being in full growth when the damp, foggy, sunless months are with us. The tubers should be planted about two inches below the surface, in pots or pans containing sandy loam and leaf-soil; the drainage should be ample and the plants should be plentifully supplied with water when in full growth, and sufficient to keep the tubers from shrivelling when dormant. They are best grown in a greenhouse from which the frost is excluded, where they may receive all the light possible, although it is found in the mountainous districts of Victoria and Tasmania at sufficient elevation to ensure the perfect hardiness in the south of England of plants collected in these districts. *A. W. D.*

HARDY FLOWER BORDER.

STOKESIA CYANEA PURPUREA.

This effective hardy perennial is of American origin; it is in bloom from June to October. The plant is of a neat, bushy habit, and attains a height of one-and-a-half foot to two feet. It produces an abundance of large, Aster-like flowers, fully three inches to four inches across, of a shade of delicate lavender-purple. The inflorescences are invaluable for use as cut flowers.

BAPTISIA AUSTRALIS.

This is another valuable, blue-flowering perennial of American origin, producing pretty blue, Pea-shaped flowers in long racemes from June to August, on stout stems. It is a handsome foliage plant of dense, bushy habit.

VERONICA LONGIFOLIA SUBSESSILIS.

This Veronica should be included in all collections of border flowers, for it is in bloom from July to September. The long, dense spikes of deep blue flowers are extremely effective in beds or borders. This Veronica grows two feet high, and the spikes are splendid for cutting. *W. Logan.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5 Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard, 1543.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

SOIL PHYSICS.

IN spite of the fact that much life service is devoted to cultivation (and the word implies a physical process) it is doubtful whether sufficient importance is generally attributed to the physical properties of the soil. While it is true that without the necessary chemical elements no soil can be fertile, it is also true that a large proportion of soils are infertile, not from the absence or scarceness of some vital chemical element, but because of neglect of physical laws. Arising out of a faulty diagnosis, many cultivators show a disposition to apply as a standard remedy for unproductiveness larger and larger doses of manures and even if this is effective it may be uneconomical. Scientific production entails the full utilisation of all the resources of the soil and available manures, and to do this an exhaustive study of the physical not less than the chemical problems, is essential.

In this article it is proposed to attempt in a few directions the correlation of principles and practice in the hope that thoughtful young gardeners with a scientific trend of mind may be stimulated to investigation. The great need of horticulture is applied science. Not until the army of scientific observers and recorders is multiplied many times can we hope to approach the ideal of complete scientific control of horticultural production. It is up to every young gardener with pride in his profession to make some contribution to this end. One of the most important of physical processes in the soil is connected with the supply of water. This affects the gardener in two ways—the supply of water as a raw material and the drainage of its excess. It is a truism that plants, like human beings, cannot live without water, nevertheless we know that vegetation is sustained through long periods of drought without visible access to a water supply. The truth is that soil which appears " bone dry " has still a large water content.

The holding capacity of soils for moisture varies with each kind of soil and may be referred to as the specific absorption factor. Soils rich in humus have the highest absorption factor, sandy soils the lowest. A pure sand has practically no absorption factor and is, therefore, incapable of supporting vegetation, as witness the sterility of such wastes as the Sahara. Many sandy wastes have been made fertile by the incorporation and decay of organic matter, and much more could be done in this direction. It is within the power of every gardener to increase the absorptive power of his own soil by similar means. Absorptive power is not, however, the only factor in the conservation of moisture. There is a loss of moisture from evaporation and drainage as well as in supplying the needs of the plant. Rapid drainage is essential to fertility, hence control is limited to restricting evaporation. This may be done in two ways—by loosening the surface and by mulching. When the soil is fully charged with water it swells, and as the moisture is discharged the reverse process of contraction takes place, forming fissures in the soil. In firm, heavy soils these fissures sometimes assume the form of large cracks up to an inch in width; in other soils they are barely visible to the naked eye, but in all cases evaporation is tremendously increased. Hoeing or otherwise loosening the surface breaks up the fissures and interposes a loose layer offering a physical bar to evaporation. Mulching achieves the same end by a different method. It has been assumed that a growing layer of weeds takes the place of a mulch; this is a fallacy, because the weeds themselves rob the plants of available moisture.

The drainage of excess water from the soil has a great effect on fertility. Every cottage gardener knows that a plant will not grow in a watertight receptacle, hence the provision of an outlet in the common garden pot. The main reason is that stagnant water effectually prevents the access of air which plays a very important part in the many chemical reactions necessary to fertility. Where there is good drainage air follows the water by mechanical suction. On the large scale there is no exact counterpart to the watertight receptacle, but bad drainage will always reduce fertility in proportion to its imperfection. There are several practical ways of improving drainage in soils, besides the obvious ones of digging ditches and laying drain pipes under the surface. Laying the ground in ridges or " lands," deep cultivation, and the incorporation of decayed organic matter, all play their part. Stones are also useful in this respect, and their wholesale removal is to be deprecated.

Another highly important physical property of the soil is its temperature, which will depend on a variety of causes, such as specific heat, absorption of heat, radiation, conduction and evaporation.

The specific heat of a body is the number of thermal units required to raise a unit weight of the body through 1° of temperature, compared with the standard substance water. Water, with one exception, has the highest specific heat of any known substance, hence, soils with a high capacity for absorption of water have also a high specific heat. There are both advantages and disadvantages in the possession of this property. A very high specific heat renders the soil slow to acquire the minimum temperature necessary for germination and propagation in the spring, though it ensures the equable temperature so beneficial to steady growth over an extended period. The gardener's aim is a soil where both specific heat and absorptive capacity for moisture are at the optimum, and it seems that this ideal is most nearly approached in the case of a well drained, well-tilled soil, rich in humus. Rapidity of absorption of heat, which must not be confused with rise in temperature, is a very important factor in fertility. The effects of the slope of the land and of the presence of natural or artificial barriers serving as shelter from cold winds and as a reflective background for the sun's rays are well-known. The effect of the colour of the soil itself is less frequently considered. Black soils, however, absorb heat much more rapidly than soils light in colour, and the degree of blackness is a fair index of rapidity of absorption. This accounts, in part, for the value of soot as a surface dressing, and for the traditional reputation of black soils for fertility and early maturation of crops. The reverse process of radiation takes place more rapidly from dark soils, but absorption and radiation are not proportional, and the net advantage is always with the black soil. The effect of a surface dressing of lime is to reduce absorptive power and, where immediate warmth is required, as on a south border in spring, it is worth while nullifying this effect by forking the lime below the surface.

Other possible ways of losing heat from the soil are by conduction and evaporation. A well-tilled soil, the interstices of which are filled with air, is practically a non-conductor of heat, but hard soils, impervious to air, have some conductive power. Evaporation, since it results in the removal of a body of higher thermal capacity, is one of the most patent sources of loss of heat. This affords another reason for the prevention, by the methods previously described, of loss of moisture by this means.

Although the thermal contents of the soil are mainly derived from an outside source—the sun, the effects of internal decomposition in the soil is not negligible. Most chemical reactions take place with evolution of heat, the simplest example in the garden being the hot-bed. The same chemical reaction will always produce the same amount of heat, whether the reaction takes place slowly or quickly; but, of course, the rise in temperature is not always the same through many causes which produce variable dissipation of heat. Solution, like evaporation, when unaccompanied by chemical reaction invariably results in absorption of heat. Hence, it is theoretically true that soluble manures, such as nitrate of soda, make the ground colder, but the effect of a light dressing on such a relatively large bulk must be infinitesimal.

The soil is the physical medium in which all the chemical reactions take place that result in the production of the crop, and it is inevitable that the physical nature of this medium will have a great effect on the quality and quantity of the crop. In the laboratory nearly all reactions take place in solution—generally aqueous solution.

The root hairs provide the sole channel for absorption of food into the plant. The physical problem which presents itself to every gardener is that of bringing the two—root hairs and plant food—into contact. Nearly all the processes of culture have this as their main object.

It is obvious that the amount of food capable of being absorbed will vary with the number of root-hairs. This explains why so many types and varieties of plants flourish in reputedly poor soils. It is often solely a question of the development of root systems. By this means a plant may be enabled to extract from a given area the food that other processes do not bring to the door of those varieties which refuse to grow except in rich soils. It is probable that roots cannot function and flourish in regions where air does not penetrate, hence the added importance of drainage, deep digging, hoeing and frequent stirring of the soil. The soil must be imagined as having a structure similar to a sponge with innumerable tiny channels for the circulation of air and moisture. It is essential that the soil should have both firmness and a certain amount of resilience, otherwise, when compressed, the spaces are squeezed out, and it becomes an impervious lump. This happens especially to clayey soils when worked in wet weather, and explains why heavy tractor ploughs have been found to reduce fertility in some cases. The incorporation of decayed organic manure is a remedy for this plasticity.

The benefits of exposure of soil to frost and weather changes have long been recognised. When frozen, the water in the soil expands and forces even the most rock-like or clayey soils into fine particles. This process is facilitated by ridging to expose a greater surface. At the same time, this procedure produces aeration, which is always beneficial. Hence the desirability of leaving the surface rough in all cases when not immediately required for planting.

Although stones represent, theoretically, so much waste of space in the soil, they nevertheless serve their purpose in soil economics. They may be compared to the pavement in the street. It is probable they assist in preserving the right of way for water and air passage and in giving resiliency to the soil.

Whatever may be the precise method of the absorption of food into the plant, it is of the highest importance that the physical condition of the soil shall be such as to favour absorption by the roots.

The advantage in supplying manure in soluble form is that it becomes immediately available to the plant, and under favourable conditions may become fully absorbed by the plant. The disadvantage is that there is always a danger of soluble matter being lost in the drainage water. To avoid the risk of this, so far as possible, certain soluble manures, such as nitrate of soda, should only be applied to growing crops.

On the other hand, it is essential that insoluble manures that have to be absorbed by physical contact with the roots shall be in a finely-divided state, as, for example, basic slag, particularly when applied as a top-dressing. An exception may be made where solid matter can be placed in a position directly accessible to the roots, as, for example, quarter-inch bones in the bottom of pots or beneath the roots in a vine border.

The point that seems to be emphasised in the consideration of these physical principles is the importance of humus or decayed organic matter.

In the absorption and conservation of heat and moisture, in facilitating drainage, in providing that physical resilient texture invaluable to root-action and the passage of solvent matter, the substance we call humus plays a predominant physical part which has partly escaped recognition. All those who aim at the highest economic production must see that every possible step is taken to provide the best physical medium for the growth of crops without which much of the money spent on purely fertilising material is wasted. *W. Auton.*

SPECIAL PLANTS FOR LARGE BEDS.

As a change from what are known as summer bedding plants, there are not a few fine perennials equally as effective and with long-flowering qualities, that look exceedingly well in large beds.

In fact, when removed from the many species and varieties that usually go to the making of a hardy herbaceous border they impress their individuality with greater force, and when used in the mass give pleasing and often surprising effects. No tender bedding plant or annual can provide a display so effective as some of our finest perennials.

Hesperis matronalis plena (Fig. 58) is one of the best of such plants. It has been for centuries a much-prized garden favourite, and nowhere looks more effective than when massed in a large bed. It is not difficult to grow when once its cultivation is understood. The passion for tidiness goes some way to account for its scarcity. The cutting down of the flower stems immediately after the flowers have faded is a ruinous procedure and usually results in the death of the plant. If these old stems are allowed to remain until growth again commences at the base, success is certain.

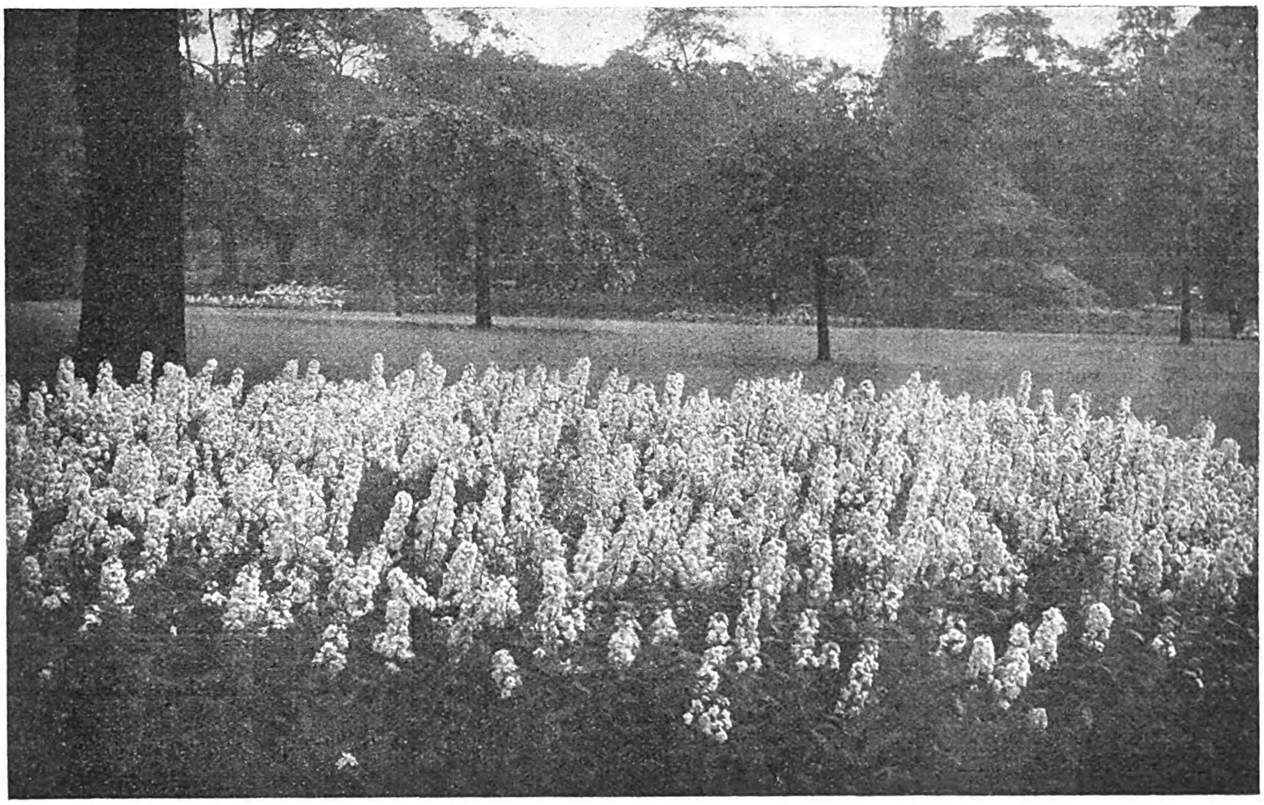


FIG. 58.—BED OF THE DOUBLE ROCKET, HESPERIS MATRONALIS PLENA IN HYDE PARK.

The purple form is a less satisfactory plant, at least, in town gardens, and the delightful lilac form shown at the R.H.S. Hall, from Aldenham, some years ago, cannot be obtained in quantity. The old plant catalogues of sixty years ago mention a red variety, but this has apparently disappeared.

Veronica longifolia var. subsessilis is another first-rate subject for a large bed. It is the finest of all the herbaceous species. It is not over hardy, being a native of the warmer parts of Japan. It has the advantage of being one of these plants that may be moved at any time without any ill effect. I have used it to replace late Tulips with great success. During hard weather a covering of dry leaves makes the plant quite safe. For some reason this species does not produce seeds in this country. I have made two attempts at seed saving, growing the plants under glass and providing ideal conditions for ripening the seed capsules but with no success.

Malva Alcea var. fastigata is also worthy of a large bed to itself. It is a splendid species and for this purpose superior to the more popular Lavatera Olbia. M. Alcea is perfectly hardy and provides a showy bed for many weeks; the flowers are a delicate shade of pale rose. It may be raised from seeds while cuttings rooted in a cold frame during the summer make fine plants for the following year. This Malva is far less grown than it deserves to be.

Salvia dichroa only received the R.H.S. Award of Merit a year ago, but has long been grown in our gardens. A native of the Atlas Mountains, it is not perfectly hardy, but in the south it is rarely killed by frost. A well-filled bed of this Salvia is a very striking object. I remember seeing this Salvia at Tongswood Gardens, Hawkhurst, in 1914, in magnificent form, six feet in height, as effective as a Delphinium and flowering well into the autumn. The plant revels in rich, rather heavy soil, and should be well fed. It seeds freely and is quite an easy plant.

The better-known Salvia virgata nemorosa is another splendid plant for an isolated bed. It is of the easiest culture and now well-known.

Helenium Crimson Beauty, raised by the late Mr. Jackman, at Woking, is a very fine plant, now coming into favour. It makes a fine bed, is a first-rate town plant, and, if given good soil and full sun, will last in beauty the whole season.

Masses of Phloxes and Delphiniums are now common features in many public parks and private gardens. Their one fault is that their period of effectiveness is short.

Aster Thompsonii is one of the very best plants for use in this way. Last summer, while I was visiting the Marine Parks, South Shields, a huge border of this Aster was a great surprise to me. It has always been considered a slow grower and scarce, but here was a border of nearly two thousand plants which were a mass of flower from early July until destroyed by frost. None of the modern, garden-raised Michaelmas Daisies can compare with this fine species in this respect. *P. S.*

MESEMBRYANTHEMUM.

(*Continued from p.* 85).

2A.—MUIRIA, N. E. Br.

Stemless, with short, fibrous roots. Growths more or less compressed-subglobose or compressed-ovoid and sometimes slightly angular from mutual pressure, with an obscure, short, slit-like orifice below the apex on the side turned towards the centre of the clump, very fleshy, velvety-puberulous with adpressed, fine hairs. Flower solitary, just exserted from the top of the growth, with the clavate pedicel included; bractless. Calyx 6-lobed down to its union with the ovary; lobes oblong, flattish, with membranous tips. Petals numerous, free, in several series, linear, the inner very narrow and filiform-linear (staminodes ?). Stamens numerous, connivent-erect; filaments not hairy at the base. Glands around the top of the ovary 6–7, broad and nearly contiguous. Stigmas 6–7, short and stout, erect, or possibly finally spreading. Ovary externally appearing inferior and very large and pear-shaped, but in reality partly superior and very shallow, being partly immersed in the very stout clavate top of the pedicel, 6–7-celled; placentas on the floor of the cells. Capsule shallow, convex on the top, with the sutures between the valves raised into ridges, and with 6-7 valves and cells; valves deltoid, when expanded horizontally spreading; expanding-keels closely contiguous so as to form a stout central keel, with broad, membranous, marginal wings as long as the valves; cells open; without cell-wings or a tubercle. Seeds many in a cell; ovoid, slightly compressed, with a nipple at one end, smooth, brown.

Only one species (M. Hortenseae, N. E. Br., the type of this strange genus) is at present known; a native of the Little Karoo in South Africa.

I have very great pleasure in naming this remarkable genus in honour of my friend Dr. J. Muir, and the species after his daughter Hortense, in recognition of the very great assistance Dr. Muir has rendered by sending living plants to me, with valuable information concerning them, which has enabled and will still aid me to give a much better account of many of these genera than would otherwise have been possible.

Generically, Muiria is more nearly allied to Oophytum than to any other genus, and I place it next after that genus.

1.—M. Hortenseae, N. E. Br. (Fig. 59).—Growths about 3–5, crowded together into a clump, each 1–1½ inch high, 1–1½ inch broad, and ¾–1 inch thick, more or less compressed-subglobose or compressed-ovoid, sometimes slightly angular from mutual pressure, very obtusely rounded at the apex, with a somewhat obscure, slit-like orifice below the apex, always on the side facing towards the centre of the clump; substance very fleshy; surface smooth, velvety-pubescent, with very fine, adpressed hairs directed downwards, whitish or greyish under natural conditions, often with a rosy tint where exposed to strong sunlight, partly invested at the base with the brown, withered skins of former growths. Flowers solitary, with the thickened top of the pedicel just exserted from the burst opening of the growth, which during flowering becomes withered, wrinkled and brown. Calyx 6-lobed down to its union with the ovary, pubescent like the growth; lobes erect, 2½–3 lines long and about 2 lines broad, oblong, obtuse, membranous at the apical part. Corolla varying from 5–12 lines in diameter, cup-shaped, opening about 10 a.m. and closing between 4 and 5 in the afternoon, sweetly-scented; petals numerous, free, in several series; the outer 4–6 lines long and ½–1 line broad, linear, obtuse or obtusely pointed, the inner smaller and narrower, with the innermost linear-filiform, (staminodes ?), somewhat stiff or brush-like to the touch, pure white in some flowers, in others pink at the tips or more or less tinged with very pale pink except at the base. Stamens 2–3 lines long; anthers yellow. Stigmas 6–7, erect, probably becoming erectly-spreading, ¾–1 line long, stout, acute. Ovary partly superior, shallow, conical at the top, with the cell-part immersed in the top of the stout, clavate pedicel, which is 3½–5 lines thick at that part and has the appearance of being a large inferior ovary, and is pale green. Capsule 3–3½ lines in diameter when closed, and including the obconic under part about 3 lines long, pale brown; when expanded 6–7 lines in diameter and pallid within, with yellowish-brown expanding-keels. Seeds about ⅓-line long, ovoid, smooth, brown, with a darker brown nipple.

Riversdale Division: In the Klein Karoo among quartz stones, at 1,200 to 1,400 feet above sea-level, flowering in December, Muir, 3885!

The cluster of somewhat egg-like bodies that constitute this strange plant render it one of the most remarkable among flowering plants, for it is quite unlike any other at present known. I have not seen a plant in flower, as the plants sent to me failed to produce flowers this season, but have described the floral structure from flowers sent to me in formalin by Dr. Muir, and from information he has supplied. From which it would appear that the root-system is superficial and apparently not penetrating deeper than about 2 inches into the ground, and that in nature the growths are buried in the ground for about half their height, the portion underground being green. Dr. Muir informs me that when the plant is preparing to flower, "A hard spot is palpable in the fleshy body and the covering epidermis gets thinner and paler. This hard spot is sharply marked off from the surrounding softer substance. The flowers burst right through the fleshy body at some prominent part of the upper convexity. A fissured lesion or wound is formed, longitudinal at first (probably through the fissure), and then irregularly branched as pressure is exerted by the advancing flowers. The edges of this fissure are raw at first and exude moisture, just like any other tear or cut."

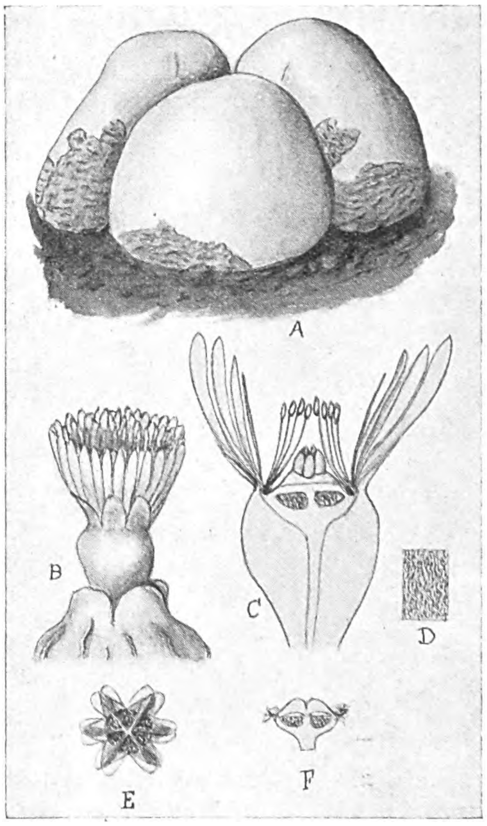


FIG. 59.—MUIRIA HORTENSEAE.

A. Plant at rest, slightly reduced; B. Flower burst through the top of a growth, natural size; C. Section through a flower, enlarged two diameters; D. Hairs on a portion of surface, magnified; E. Capsules expanded, natural size; F. Section through a closed capsule.

My drawing (Fig. 59) represents (at A), a plant with a cluster of three growths, slightly reduced, made from a living plant. B, is drawn from a flower sent to me in formalin and the remains of a dried growth attached to a dried flower, which may not be quite like that of a living plant, of about natural size. C, represents a section through the flower B, enlarged two diameters. D, is a magnified view of the hairs on the surface of the plant. E shows a capsule with valves expanded, natural size; and F is a longitudinal section through a closed capsule, rather larger than the natural size.

One peculiarity of this odd plant is that the orifice is always (at least, so far as my two plants testify) on the side of the growth that faces the centre of the clump, and on the native-grown specimens is rather obscure and might easily be overlooked, but after being in cultivation here for a few months is as evident as shown in my drawing. And this seems repeated in the new growths, which form inside the old ones just as they do in the genus Conophytum. Upon cutting open a flowering growth sent to me by Dr. Muir, I find that the flower is terminal, arising at the point of attachment of the base of the old growth on the same side as the orifice and curving with the curvature of the growth; behind and at the base of the pedicel (which is quite bractless) arises a new growth inside the old one and, of course, invisible from outside, curving conformably with the old one, the curvature being due to the fact that the actual attachment of each growth to the rootstock is about 3–4 lines above the base of the growth on the same side as the orifice. Evidently this plant is of very slow growth and does not increase often. *N. E. Brown.*

(*To be continued.*)

[Since the above was written I have received flowering growths of this plant passing into the resting stage, and on cutting one open was surprised to find that the tissue within the skin of the old growth consisted entirely of very large, loose and separate globose cells, varying from half a line to one-and-a-half-line in diameter, each glistening like a dew-drop, having a thin, but somewhat tough cell-wall and clear, colourless watery contents. Under a microscope I noted that the outside of the wall of these cells was marked with outlines of small cells that had been in contact with it, but had now disappeared. As I had never, in any plant, seen a collection of large, loose cells of this character, I wished to ascertain their origin and purpose, and therefore sacrificed one of my non-flowering growths by cutting a piece from it to examine its structure, when I found that the whole interior is filled with these large, globose cells with all the spaces between them filled in with a connecting tissue of very small cells firmly binding them together into a fleshy substance, all of it with clear, colourless, watery contents, as the chlorophyll is only evident when highly magnified, the granules being sparsely scattered over the walls of the outer cells, a few even in the large cells, and are excessively small. From this it seems evident that when the plant prepares to go to rest in the very arid region it inhabits, the substance of the connecting tissue is first used up and seems to disappear entirely, leaving only the large cells to supply the new growth contained in the old one with moisture, or perhaps more probably, to retain moisture around it during the dry season, or until rain falls and the new growth starts developing. It is evident that these large cells (which are botanically called idioblasts) are capable of retaining their watery contents without drying up for a long time and in a manner that I have never observed other cells or sections of tissue to do. I removed some of these large, loose cells and placed some on a piece of glass and some on a piece of paper, all isolated, and allowed them to remain uncovered in an ordinary living room. As I write they have now been exposed to the dry air of the room for over one hundred hours, and seem just as fresh, as plump, and as glistening as when I first removed them from the old growth. If they can do this when separated and in such exposed conditions it is very evident that when protected by the skin of the growth they must preserve their fluid contents for a very long time, and probably gradually supply moisture to the young growth that they surround inside the old one. Yet, when one of these cells is burst, its watery contents dries up quickly. These large cells do not contain crystals, which is one of the functions of idioblasts, but there are also much smaller idioblasts mingled with the tissue containing bundles of needle-like crystals (raphides), which are excreta. And I have hitherto regarded all these large cells or idioblasts (which exist in most genera of this group, the familiar pellucid and dark dots being due to them) as functioning only as excretory cells, for they frequently contain tannin or crystals and are thrown off with the dried skins or dead leaves, but from the behaviour of those of this singular plant, as above recorded, it is possible that besides that purpose they also function as special structures whereby these plants are enabled to endure and survive the long drought and intense heat to which they are subjected. They are worthy of more careful examination than I am able to give them. *N. E. Brown.*)

ECONOMIC PLANTS OF THE BAY ISLANDS (HONDURAS).

(*Continued from p.* 81).

Jocote and Hog Plum.

The Jocote, or Ciruela (Spondias purpurea), is the fruit of a small, pretty tree, which, on Ruatan Island, is found in the wild and the cultivated state. It is easy to propagate either from seeds or cuttings, and is occasionally used to make live fences. When the tree produces its dark red or purple blossoms, which are borne on the larger branches only, the leaves drop and new ones do not appear until the fruits begin to ripen. The latter are purple in colour, oval-shaped, and of a sourish-aromatic flavour, with a very large stone in the centre. They are either eaten raw or made into preserves and into a fermented beverage. On the mainland there is also a variety bearing yellow fruits.

The Hog Plum or Jobo (Spondias lutea) grows on a forest tree, reaching a height of 100 feet (say 30m.) with light and soft wood of no value. This tree is never cultivated, but, like the preceding species, it is sometimes used for fence posts, as it takes root and keeps alive like Willow. The yellow fruit is much esteemed by the hogs which accounts for its local English name. It has a comparatively larger stone than the Jocote, its close relative; the flesh is also inferior in quality, having a rather acrid flavour. When the fruits are maturing the air for a considerable distance from the tree is laden with a very pleasant scent.

Citrus Fruits and Tamarind.

The Citrus Fruits, which are of Asiatic origin, do not thrive well in the Bay Islands, and certain species of them are frequently attacked by the leaf-cutting ants. The most common of these fruits is the Sweet Orange or Naranja Dulce (Citrus Aurantium, L. Risso), which is propagated from seeds or by budding or grafting on Sour Orange trees. By the former method the tree will not begin to bear fruit until ten or more years after planting. By budding or grafting, however, they will bear within four or five years.

The Toronja, or Grape Fruit (C. decumana) (Fig. 60), so called from its habit of growing in clusters, is globose in shape, while the true Shaddock is slightly Pear-shaped. The fruit has medicinal properties; it has a bitter rind and acid pulp, and is eaten with sugar. It will keep for some time if taken from the tree before complete maturity, and in former days small quantities of Grape Fruits were shipped to the United States.

The Citron or Cidra (C. Medica, Lin.), is sometimes cultivated for the sake of its thick inner rind which is made into preserves. Other species found in the Bay Islands are the Lime or Lima (C. Limetta, Risso), the Sweet Lime or Lima Dulce (C. Limonum var. dulcis, Risso), and the Lemon or Limon (C. Medica Limon).

The Tamarind or Tamarindo (Tamarindus indica) is a big tree of Asiatic origin, with yellow wood and pinnate leaves, but now cultivated throughout the tropics. It grows very slowly but reaches a great age, and is esteemed for its fruits and its shade. It bears red-striped, yellow flowers which develop into an edible pod with a somewhat acid pulp. It begins to bear about the eighth year from planting, and its fruits ripen from June to August.

There are two species of Tamarind, the East Indian (T. indica) and the West Indian (T. occidentalis), but some botanists classify both as T. indica. As a matter of fact, the trees and the flowers are absolutely alike in both varieties, the only difference consisting in the shape, size and taste of the fruit. The West Indian variety, which is the one found in the Bay Islands, bears pods three to four inches in length, containing from two to four seeds. The East Indian Tamarind has larger fruits with six to twelve seeds, which are sweeter in taste than the other one. The leaf-cutting ants very frequently kill this tree in the Bay Islands.

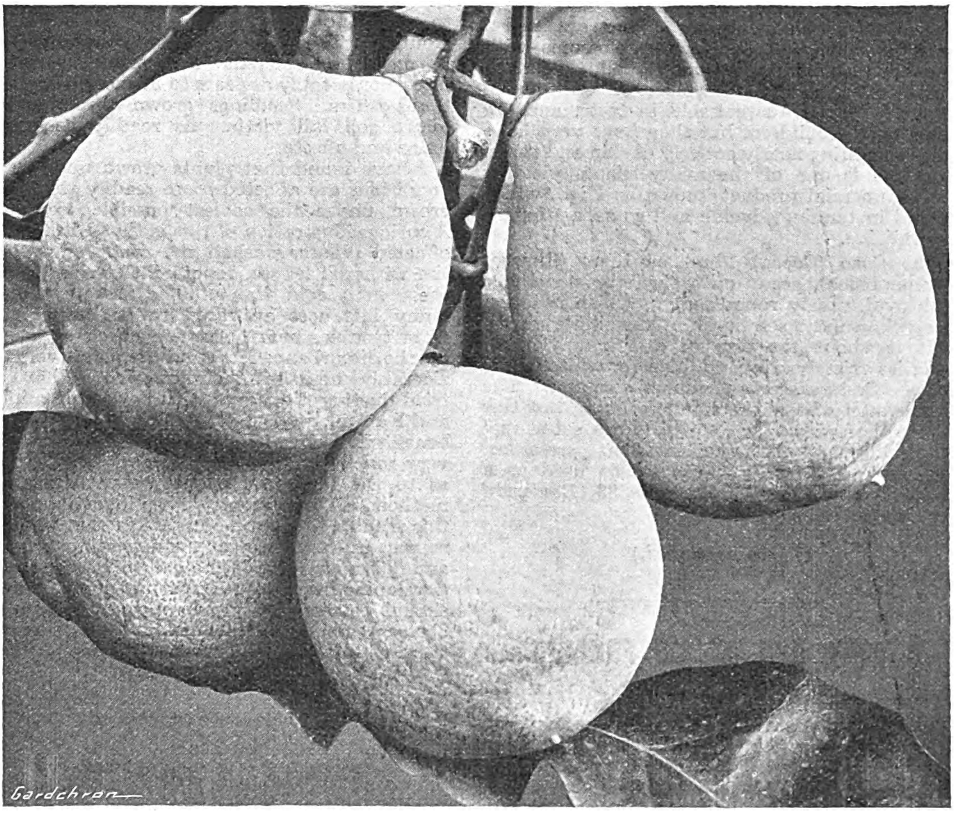


FIG. 60.—GRAPE FRUITS SHOWN BY CECIL HANBURY, ESQ., AT THE MEETING OF THE ROYAL HORTICULTURAL SOCIETY ON JANUARY 25.

Naseberry and Mammee Apple.

The Naseberry or Nisberry tree (Achras Sapota L., Sapota Zapotilla, Coville) is found both in the wild and in the cultivated state; it belongs to the family of the Sapotaceae. The wood is generally known as Sapodilla among the English, and this name is also commonly applied to the forest tree, but never to the cultivated one. The Ladinos call it Nispero, a name applied in Spain to two entirely different trees, which are both absent from Central America, viz., the Loquat or Japanese Medlar (Eriobotrya japonica), and the true Medlar (Mespilus germanica).

The Central American Nispero bears round fruits with a rough, reddish skin, suggesting an Irish Potato with earth adhering. It has sweet, yellowish pulp of very pleasant taste, which is eaten raw; in certain parts of the West Indies preserves are made from it, hence the name Marmalade Plum, by which it is sometimes called. As the fruits may easily be kept one or two weeks, it is rather surprising that, so far, no attempt has been made to introduce them to the North American markets. The cultivated variety is much larger than the wild one, and contains from four to six (sometimes even more) black seeds, while the latter has only from one to three seeds.

The very hard, heavy, fine-grained wood is reddish in colour and resembles mahogany; it is locally used for axe handles, in cabinet making, and in construction work. In parts of Central America and Mexico it has been used for railway ties (sleepers), but on account of its hardness it is very difficult to drive spikes into it. This wood is nearly indestructible, and the Toredo does not attack it. In the lowlands of British Honduras, the adjacent part of Guatemala, and the Mexican States of Yucatan Tabasco and Chiapas, this tree is found in great abundance and furnishes Chicle from which chewing-gum is made. Chicle is obtained by the evaporation of the milky juice which is secured by tapping the tree.

Calocarpum mammosum Pierre; Acradelpha mammosa, Cook, and Lucuma mammosa. Gaertn., are the three different names under which the tree bearing the Mammee Apple, Mamey Apple or Red Mammee (Japote, in Spanish), has been described by botanists. It is often confused with the preceding species, and like it, is also sometimes called Marmalade Plum, as it is occasionally made into preserves.

The tree reaches a great size and has undivided green leaves which grow in clusters. The fruit is about the size of a large Lemon, and has a russet coloured, thick, rough skin, under which there is a reddish-brown pulp. It contains single, sometimes two, large seeds, elliptic in shape, and polished except on the dentral surface. The pulp is sweet, rich and pleasantly flavoured, but somewhat insipid.

Krabo, Sea Grape and Coco Plum.

The tree, known locally by the Mosquito name of "Krabo," (Byrsonima crassifolia, H. B. K.) and in Spanish as Nance and Nancito, is characteristic of the dry savannas, and is very abundant on arid and stony soil in Ruatan and Bonacca. It is a small, gnarled tree, the bark of which is excellent for tanning purposes, while the wood furnishes a good quality of charcoal. It bears very small, yellow, aromatic, drupaceous berries, which are commonly eaten by the children. The hogs like to feed upon it, and in some regions of the Mosquito coast, this is practically their only food during several months of the year. It is claimed that the lard obtained from hogs which have been largely fed on Krabos will not coagulate. A cultivated variety of this tree is also found in the Bay Islands, and this bears a larger and sweeter fruit.

The Beach Grape, Sea Grape or Uva del Mar (Coccoloba uvifera, L.), grows on a low, gnarled tree with a smooth white bark, and thick, leathery, heart-shaped leaves. There are several varieties which all bear white blossoms with pleasant scent, which produce small, Grape-like fruits, of a reddish, purplish or dark-bluish colour. They are sweet-acid in taste, and are eaten by the children, but they have very little pulp, consisting nearly entirely of skin and stone. The tree is one of the many plants yielding the commercial product known as Kino, which is used in tanning, dyeing and as an astringent in medicine.

The Coco (Cocoa) Plum or Icaco (Chrysobalanus Icaco), grows on a shrub or small tree with oval, nearly round leaves, which is found along the sandy, sea beach. The edible, round fruit is about the size of a Plum. Several varieties exist, bearing red, black or white fruits, but the first-named is the most common. The black variety bears the smallest Plum, but this is also the sweetest. The fruits are eaten raw by children, and make excellent preserves. The bark, root and fruit are also used as a black dye. *Edouard Conzemius*, 33, *Boulevard des Batignolles, Paris.*

(*To be continued.*)

A NEW DISEASE OF FREESIA.

During the past few years, there has appeared a new and mysterious complaint among Freesias. It would be interesting to know how widely this is distributed and what, if any, remedial measures have been found satisfactory. I particularly use the word "complaint" rather than "disease," for at the moment it cannot be said that the trouble is due to a fungus or bacteria. I have carefully examined affected plants under a powerful microscope and I can find nothing whatever which conforms to any of the known parasitic or fungous troubles incidental to plant life. I have also the assurance of Mr. George H. Pethybridge, mycologist to the Plant Pathological Laboratory, Harpenden, that he is unable to detect the presence of any fungus in the tissues of the leaves submitted. He has also submitted leaves to entomologists who were not satisfied that the damage was due to any insect pest.

Affected plants start to grow readily from the dormant bulb and produce two or three healthy leaves. Suddenly (within the course of forty-eight hours) one or more of the leaves develop a series of brownish spots. As these spots develop, the tissues wither; gradually, in the course of a few days, the spots merge together and the whole leaf becomes withered and useless. It is a curious fact that in the majority of cases new growths are not affected, that is to say, one leaf may be withered and useless while the young growth as yet unaffected appears to be perfectly healthy. Badly affected plants wither up and collapse entirely, generally before any sign of flower appears.

From enquiries I have made on the subject, I gather that a number of the foremost growers of Freesias are suffering serious loss from the same trouble, which appears to be very largely confined to the new race of coloured Freesias, and is developing badly from year to year.

Freesia refracta alba appears to be practically free—or nearly immune—but the devastation among choicer hybrids is becoming a subject of very grave anxiety.

The greatest difficulty appears to be the present impossibility of classifying the complaint; it may be an unclassified form of Mosaic disease, but whatever it is, there is urgent need of investigation as to the cause.

The late Rev. J. Jacobs was considerably troubled and hazarded the opinion that the complaint probably originated from the twigs used in the support of the plants. I do not think that this view can be maintained. I have tried the experiment of pinning an affected leaf on a healthy plant; the results were entirely negative, from which it would appear that the disease does not spread by contact, even where the tissues of a healthy plant have been ruptured. Virgin and sterilised soils appear to make no difference to the spread of the trouble. There remains the possibility that it may be inherent in certain varieties; Excelsior notably appears to be more susceptible than others. Seedlings grown throughout in virgin soil fall victims as readily as mature bulbs and offsets.

I have found that plants grown under warm conditions are affected more readily than those grown under the coolest possible treatment. A curious illustration of this is that I have lifted affected plants, washed the roots, snipped off the withered leaves, repotted them and placed them in a cold frame. The new growths in many instances appeared to be entirely free from trouble, but the severe check occasioned by the disturbance reacts on the plants very considerably and delays their flowering. I have also tried dusting the leaves with flowers of sulphur, and I am inclined to think that the plants have benefited from this treatment, but I should very much welcome the views of other growers as to the theory of origin and a satisfactory method of treatment. The investigation of this trouble is the more urgent in that improvements in varieties are progressing rapidly, and it is a cause of deep concern that this newly developing family of fragrant and popular flowers should be menaced by an apparently new and obscure complaint which, at its worst, threatens them with the possibility of extinction. *Herbert G. Longford, Abingdon, Berkshire.*

FRUIT REGISTER.

PLUM DIAMOND.

Regarding Plum Diamond described on p. 71 of your issue January 22), the origin of a fruit or plant is sometimes more interesting than useful, but the fruit is the chief thing for all that. Plum Diamond is described as dark purple (almost black), and the illustration (Fig. 39) bears a strong resemblance to a Plum I have seen in East Surrey under the name of Black Diamond. In that neighbourhood it also was called the Castle Plum, as tradition gave it as having been raised at Starboro' Castle.

Several good trees were stated to be growing on their own roots, and suckers were exchanged between neighbours. I have not seen one which was not worked. The growth is upright and the fruits of excellent dessert flavour. On standard trees these ripened after Victoria growing against a wall. I am wondering if this is the same Plum. The remarks concerning Apple Rev. W. Wilks I can fully bear out, except alas! it did not bear fruit last season. Its growth is clean and vigorous and the fruit will cook well when taken straight from the tree. *J. E.*

—With reference to the origin of this variety of Plum, I based my statement in my *Handbook* on a note in my father's copy of *Hogg's Fruit Manual*, which runs as follows:—"This was found in a hedge by an old man named Diamond, whom I have talked with, and was propagated, not raised, in Mr. Hooker's nursery." *E. A. Bunyard, The Royal Nurseries, Maidstone.*

——Mr. Charles E. Pearson, in his short note, on p. 86, mentions this Plum as being known in the midlands as Black Diamond. As a midland dweller, I can add testimony to this, and I also hold the same opinion as Mr. Pearson in regard to its fine culinary qualities. But in studying the fruit markets of the midlands, chiefly those at Evesham, Birmingham and Stratford-on-Avon, during the past three seasons, I have been surprised at the poor prices realised per "pot" (72 lbs.) for this Plum. Black Diamonds, although never in "glut," are very little in demand at any time, and at fruit auctions I have heard dealers say "They're only Black Diamonds," and the Plums would be knocked down to someone for considerably less, very often, than, say, a pot of Yellow Pershore. This Plum "travels" badly when fully ripe, yet the unripe fruits are purplish-green and as hard as the proverbial bullet. From a commercial point of view, therefore, Black Diamond is of little value. But in gardens where ample space is available, I should certainly advocate growing the variety, for it is a vigorous grower. It is best trained as a bush.

I do not altogether agree with Mr. Pearson when he states that it is by no means a heavy cropper. It is true I have been in localities where it is a shy bearer, but in many others I have seen heavy crops of Diamond and have found a good crop to be usual. The rankness of its growth no doubt has something to do with its shyness in bearing, at least, in some cases. I have one very large tree with ugly, great limbs, and very little fruit is ever borne by it. But two smaller trees in the vicinity, better-shaped and conditioned by restricting the growths, have borne good crops during the three seasons they have been under my charge.

The tree is, unfortunately, susceptible to aphis attacks, and as Mr. Pearson remarks, it is always the first sort to show the foliage curling with fly. Nevertheless, it is a great pity Diamond Plum is not more appreciated. *H. W. Stenning.*

VEGETABLE GARDEN.

EARLY CARROTS IN FRAMES.

On p. 55, Mr. W. Auton describes the method of growing early Carrots in frames. It is quite possible to produce early Carrots without going to the trouble of collecting leaves and stable manure and making a hot-bed of them. When using a brick-pit for such crops as Carrots, Lettuces or Radishes, I throw the soil out of the first light into the next, and if any stable manure is available, I put in two barrow-loads and tread it down firmly. If stable manure cannot be had, I use ordinary cow manure, such as is dug into the garden, turn the soil back on the manure and continue the process until the row of pits is finished. The seeds are sown in drills, the method being more convenient for weeding. The lights are kept closed until germination takes place, then tilted a little when the sun shines. The lights are never pulled off except when watering the crops, until the Carrots are fit to pull, which is equally as soon as my neighbours who adhere to the more laborious method which Mr. Auton describes. *Grigor Roy.*

THE LEEK.

The Leek, Allium Porrum, when well-grown and thoroughly blanched, constitutes an excellent and wholesome vegetable, with medicinal qualities, besides being very valuable as a pot-herb; moreover, it succeeds on the lighter soils where the cultivation of the Onion often presents great difficulties and can, at times, be used as a substitute for that vegetable, which is always in such great demand.

The Leek is a true biennial, that is, it requires nearly a whole year of normal growths before it prepares to flower and produce seed, which it does in the course of the second year. The edible portion consists of the leaves which spring from the upper part of a flat stem, sheathing each other at the base and folding longitudinally to the point and forming a solid, stem-like structure of considerable length. It is essentially a winter and spring vegetable, but supplies may be maintained if wanted during the greater part of the year. The essentials of cultivation are a rich, well-worked soil and abundance of water during the growing season. If supplies are wanted early, a small sowing should be made in heat in January or the beginning of February, the young plants grown on under glass and gradually hardened off for planting outside at the end of March or the beginning of April.

The maincrop may be sown outside in March, and another sowing should be made at the end of April or beginning of May for the late crop. From this sowing supplies may be maintained during the spring till May or even June, when the flower-stems begin to develop.

There are several methods of cultivation, and a good system for producing very fine Leeks is to make trenches in the same way as for Celery. If the trenches are well-prepared, left six to nine inches deep and used for early plants which have been hardened off, they afford them considerable protection and make it convenient for the application of water or manure during the summer. Excellent Leeks may be grown, however, without adopting the somewhat expensive system of trenches, by planting in well-drawn-out drills on deeply-worked soil, at a sufficient distance between the rows to allow of thorough earthing-up.

Still another system of planting is adopted in many gardens with good results. Holes about six to nine inches deep are made on a well-prepared bed and a plant is dibbled into each. As the plant grows, the hole is gradually filled up by surface hoeings and finally some earthing up may also be done, when fine Leeks with a good length of blanched stem are produced. Well-blanched Leeks may be served at table in the same way as Seakale and make a first-class substitute for that delicious vegetable. *A. P. C.*

FUNGI AS AN INTERNATIONAL PROBLEM.

A NOTE in *The Gardeners' Chronicle* for January 29, 1927, page 77, reporting a paper communication to the Botanical Society of Edinburgh on "Fungi as an International Problem," has been brought to my attention. The report contains certain statements which were not stated by myself when the above-mentioned paper was read. These statements are:—(1) ". . . . plant quarantine laws for the regulation of foreign plant importation were instituted in 1912, and two years later Canada adopted similar protection measures." This should read:— . . . . were instituted in 1912, two years after Canada had adopted plant quarantine measures. (2) " . . The blister rust of Weymouth Pine was another serious forest disease which originated in Siberia and had existed in Europe for sixty-five years." This should read:—. . . . and had existed in Europe for *at least* sixty-five years . . . Just how long the Blister rust has actually been present in Europe is not definitely known. It has probably been present in Europe many years before the first record of the disease was made in 1854. The serious Woodgate rust, recently discovered on Scots Pine in the United States, was overlooked by your reporter. Moreover, he failed to mention the successful inoculation results on Douglas Fir with the Phomopsis causing Douglas Fir canker, which canker was recently described by Dr. Malcolm Wilson These last two items are of particular interest to British foresters.

Will you please be so good as to allow these corrections, because the library at the United States Department of Agriculture catalogues articles that appear in *The Gardeners' Chronicle*, and I do not wish it to go on record as having made such incorrect statements.

With regard to the two matters omitted, it may interest your readers to know that new Gall-rust disease threatens the Scots Pine in America. Recently a gall-rust has been found in the United States on the Scots Pine. At present the source of this rust is not known, for it does not resemble any known rust either there or in Europe. So far, it has been only found on the European species in New York. Until this new rust, which has been reported by Dr. Harlan H. York, of the New York Conservation Commission, in *Science*, November 19, 1926, under title "A Peridermium new to the north-eastern United States," can be identified and its source determined, it is known as the Woodgate rust, after the name of the town in New York State, where it was first found. Whatever the Woodgate rust may be or from whatever part of the world it comes, there is no doubt that this rust seriously threatens the Scots Pine in America. This newly discovered rust is very probably able to pass directly from tree to tree without the intervention of an alternate host plant, a necessity in the case of the Blister rust of Weymouth Pine. (A recent account of the new gall-rust of the Scots Pine appears in *The Official Record* of the U.S. Dept. Agr., issue of December 8, 1926).

An infectious canker disease of the Douglas Fir has been recently found in Britain and described by Dr. Malcolm Wilson. This disease is not known to occur in America, where there are very valuable forests of Douglas Fir on the Pacific coast. Preliminary inoculation experiments with the organism to which the canker disease has been attributed, have shown a high percentage of infection. These inoculation experiments are being carried out in the vicinity of Edinburgh, by Dr. Wilson and the author (G. G. Hahn). *Glenn Gardner Hahn.*

[We are pleased to publish the above corrections with the additional information so kindly furnished by Mr. Hahn.—EDS.].

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

An Amateur's Celery.—On the occasion of the visit of Mr. Jones to the Guildford Association in December, Mr. J. Hall, an amateur member of the Society, brought to the meeting two stick of Celery grown on his allotment. Mr. Hall was awarded a First Class Certificate for his exhibit. Later, he received a letter from Messrs. Sutton and Sons stating that they had rarely seen such good Celery so late in the season, and congratulating the grower on his success. Mr. Hall is a frequent exhibitor at local shows and has won many prizes. *W. F. S.*

Fumigants for White Fly.—In reading your issue of the 22nd ult., I was interested in the second paragraph of your Answers to Correspondents on "White Fly Fumigants and Plants," where you make the comment that if a fumigant was known capable of killing white fly on Chrysanthemums, it would soon be placed on the market. In this connection there is an interesting article in the January issue of the Scottish *Journal of Agriculture*, "Calcium cyanide as a Glasshouse Fumigant," by Mr. H. W. Miles, an extract from which is as follows:—"The greenhouse white-fly, Trialeurodes vaporariorum, Westw., has been successfully controlled with dosages varying from one-twelfth ounce per 1,000 cubic feet in spring, to two-thirds ounce per 1,000 cubic feet in autumn. The temperature of the houses at the time of the fumigation has varied from 52°F. to 77°F., and the relative humidity varied from 71 per cent. to 95 per cent. It has been found that low dosages in spring give effective control, and fumigations repeated at intervals keep the pest in check throughout the season. Towards the end of the summer, however, when with many crops the glasshouse conditions become rather dry, dosages up to two-thirds ounce per 1,000 cubic feet may be necessary to give a complete kill of the adult insects. Plants fumigated for the control of white fly include Tomato, Arum, Chrysanthemum, Cucumber, Runner Bean, Freesia and Azalea." The fumigant referred to would appear to be effective and economical. I have personally had experience of the use of calcium cyanide fumigation for white fly on Tomatos, the results of which were extremely satisfactory. *M. S. Henderson, Rutherford, Clifford Road, New Barnet.*

Deep Trenching.—I annually bring the subsoil up, and would certainly never adopt any other system here. The subsoil of this garden varies from clay to sand, and what I consider a worse material, known locally as "sammel." This is of a marly nature, plentifully mixed with small limestone cobbles, and before the advent of tar macadam, was used for making and surfacing the roads locally. It is a substance which runs together and sets extremely hard with rain, and, unless loaded in the carts dry, will quickly form into a solid block during transit, requiring a pick to break it up again. The kitchen garden subsoil was solid "sammel" five years ago. A new spade would bring a few inches of it up with the first spit. I have trenched that up, throwing the second spit on top. At the bottom of the second spit is solid rock, otherwise I would dig deeper. During the first two years I had charge here, the major portion of the garden was under the plough, owing to shortage of labour, and such vegetables as Peas were a failure. Onions would wilt and fall over during June and July, and greens were hopeless. The first year after trenching so marked was the effect, I at once resolved to trench more in future, and this year I intend to trench about two acres. Lest any reader may attribute the benefit to manure, let me hasten to assure him such is not the case. Part of my kitchen garden must annually go without farmyard manure on account of a shortage of that commodity, yet at our county show last year I secured twenty-four awards out of a total of twenty-seven exhibits, which surely speaks well for the system advocated by Mr. Beckett. *F. C. King, Levens Hall Gardens, Milnthorpe.*

——*G. D.* questions the value of deep trenching and bringing the subsoil to the surface, no matter what it is like, as recommended by Mr. Beckett. I quite agree with *G. D.* when dealing with the class of subsoil he has; this should be broken up, well mixed with manure and other materials that will lighten it, and left there for several years. I quite agree with *G. D.* when he states that the illustrations reproduced in *The Gardeners' Chronicle* in support of Mr. Beckett's remarks on deep trenching are very striking, more especially as Broccoli plants are in question. If it had been Peas, Onions or other plants, that require a deep-rooting medium, the pictures may have appealed differently. Broccoli, so far as my experience goes, would be one of the last crops to plant on deep and newly-trenched land, as I find they are never a success when planted on loose ground, no matter how well it has been manured and worked. The best Broccoli that I have ever seen or grown were on land that was previously a Strawberry bed for three years. The Strawberry plants were simply cleared away, holes made with a bar, and the Broccoli plants set in them. Deep cultivation I agree with, but much depends on the nature of the soil. Clayey and brashy subsoil should only be brought to the surface with caution; it should first be broken up and made suitable before bringing it to the surface. Some years ago, I followed a young and enthusiastic gardener who trenched the soil as mentioned by *G. D.*, and the crops were not successful until the subsoil was placed underneath again. Far better have one foot of good, fertile soil than three feet of hungry clay to deal with, and it is much worse where the subsoil is shale and sandstone. This, if broken up, forms good drainage, but if brought to the surface causes trouble that will not cease until it is back again in its original position. Mr. Beckett is, as we all know, a past-master in the art of cultivating vegetables, but we are not all so fortunate in having his class of soil to deal with. *W. E. Wright, Tregarth Gardens, Creigiau, near Cardiff.*

SOCIETIES.

ROYAL HORTICULTURAL.

February 8.—The Annual General Meeting of the Fellows evidently induced a decidedly larger attendance at Vincent Square than is usual at this time of the year. There was an especially good show to occupy the attention of the visitors. Orchid groups were numerous and these contained many particularly good specimens. The Orchid Committee gave two First Class Certificates and four Awards of Merit to novelties. The principal floral features were groups of forced shrubs, a pleasant spring garden, also spring flowers on the staging, greenhouse Cyclamen, Carnations and alpines. The Floral Committee recommended one First Class Certificate and four Awards of Merit to novelties. The Narcissus and Tulip Committee met for the first time this season and recommended an Award of Merit to a Trumpet Daffodil. The Fruit and Vegetable Committee found an interesting variety of exhibits for consideration. There were excellent collections of vegetables, Apples, and Citruses in pots. The new exhibitors' cards for floral novelties which enable exhibitors to present interesting particulars of their plants should appeal to the Fellows, though the colours of the cards may not. There is still room for improvement in caligraphy to render the names of the plants and senders more easily read.

Orchid Committee.

Present: Sir Jeremiah Colman Bt. (in the chair) Mr. Gurney Wilson (Hon. Sec.), Mr. C. J. Lucas, Mr. Fred J. Hanbury, Mr. C. Cookson, Mr. T. Armstrong, Mr. A. McBean, Mr. J. Cowan, Mr. Robert Paterson, Mr. H. H. Smith, Mr. John Cypher, Mr. J. E. Shill, Mr. Fred. K. Sander, Mr. H. G. Alexander, Mr. Chas. H. Curtis, Mr. J. Dye, Mr. S. Flory, Mr. H. T. Pitt, Mr. Wilson Potter, Mr. E. R. Ashton and Mr. S. Low.

First Class Certificates.

Cattleya White Empress, Brockhurst var. (*Trianae Broomhill var.* × *Suzanne Hye de Crom*).—A very beautiful Cattleya of fine form and size; white, except for the pale yellow throat. Shown by Fred J. Hanbury, Esq., Brockhurst, East Grinstead.

Cypripedium Mrs. Eley var. W. G. (*Christopher* × *Commodore*).—A fine, large hybrid, with rounded, white, green-based dorsal sepal. the green area and part of the white being spotted with purple-brown; petals pale green, with pale brown spots and veins; lip light green. Shown by G. F. Moore, Esq. (gr. Mr. Page), Chardwar, Bourton-on-the-Water.

Awards of Merit.

Vuylstekeara Leda (*Vuylstekeara Brewii* × *Odontoglossum Radiant*).—The flowers of this hybrid are of large Odontoglossum size, flattish, and of fine substance. The broad lip is white at the base, heavily marked with red-brown, and there is also a red-brown mark and red dots on the waved, rose-coloured apex; the sepals and petals are rich red-brown, with some of the white ground showing between the heavy markings. Shown by Messrs. Charlesworth and Co.

Cymbidium Erica Sander var. Goldilocks (*Hookeriana* × *Pauwelsii*).—A charming hybrid bearing its flowers in long, graceful spikes. The flowers are light green-tinted yellow, with deeper yellow, brown-marked lip. Shown by Messrs. Sanders.

Cypripedium Seekon var. Biddy (*viridissima* × *Christopher*).—This has an enormously wide and rounded dorsal sepal, white with a small, pale green base; petals pale Apple-green, with a median band of dull brownish-purple; lip pale green. Shown by G. F. Moore, Esq.

Cypripedium Robert Paterson var. Westminster (*Memoria F. M. Ogilvie* × *Eurybiades*).—A bold hybrid, stiff, rounded, white dorsal sepal, heavily spotted with blackish purple; petals green along the ventral half, and brown on the upper part; lip green and purplish brown. Shown by H. T. Pitt, Esq., Rosslyn, Stamford Hill.

Preliminary Commendation.

Odontoglossum Armstrongiae, Gerrish's var.—A rounded flower of soft orange-yellow colouring. Shown by G. Gerrish, Esq. (gr. Mr. Sorrell), Milford Manor, Salisbury.

Groups.

The largest exhibit was from Messrs. Charlesworth and Co., who had a very fine display of Odontoglossum crispum, O. Fabia, O. lutescens, Odontioda Maureen, O. Cooksoniae, Wilsonara Wendy, Vanda teres alba, Dendrobium Thwaitesiae, the effective Miltonia Princess Mary, Cattleya Trianae, Brasso-Laelio-Cattleya Cliftoni, Cypripedium Morganiae var. burfordiense and many other fine things.

Messrs. H. G. Alexander, Ltd., exhibited fine plants of Cymbidium Bustard var. sulphureum, very handsome; C. Gottianum, Westonbirt var., and C. Lowii-grandiflorum, Westonbirt var.; with these were grouped three splendid plants of Coelogyne Mooreana, Westonbirt var., carrying an aggregate of nine spikes of white flowers; Laelio-Cattleya Schröderiana, Cattleya Egret, the brilliant L.-C. Fatima, and Cypripedium Maudiae. Altogether a very interesting group.

Cymbidiums were a fine feature in the large group arranged by Messrs. Sanders, and conspicuously good in the centre of the display was a large specimen of C. Ceres with six handsome spikes; other good Cymbidiums included C. Erica Sander var. Goldilocks, C. Pauwelsii Bruges Belle, C. Louis Sander and C. Albatross var. Verulam, with very large blooms. Cattleya Marceliana var. superba, Brasso-Cattleya Massangeana, Calanthes and Cypripediums were also shown by the St. Albans firm, and along the front of their group they had many interesting botanical Orchids, such as Angraecum eburneum, Trias picta, Pleurothallis Roezlii, with its drooping spikes of black flowers; Cirrhopetalum picturatum, Bulbophyllum mirum and Restrepia striata.

Messrs. J. and A. McBean showed a very bright group, wherein Odontoglossum triumphorum, with light yellow, brown-marked flowers, was very effective; Laelio-Cattleya Smilax var. Prince of Orange was also fine in colour, while Laelio-Cattleya Schroderae, Brasso-Cattleya British Queen, Cattleya Cowaniae alba, Dendrobium Thwaitesiae and Cypripedium Boltoni were other good subjects shown in addition to Odontiodas and Cypripediums.

In the exhibit from H. T. Pitt, Esq. (gr. Mr. Thurgood), were some good forms of Odontoglossum crispum, Epidendrum Endresio-Wallisii, the pale Lycaste costata, Cypripedium Rothschildianum, Odontoglossum Aristophanes var. Purple Prince, O. St. James, Cypripedium Forest King and several capital Cymbidiums. Cypripediums were very much to the fore in Messrs. J. Cypher and Sons' group, and leading sorts were C. Queen of the Belgians, C. Minos Youngii and C. Nydia; behind these were Laelio anceps, Cymbidiums and Dendrobiums.

Messrs. Armstrong and Brown's exhibit consisted principally of nine specimen plants of the lovely Laelio-Cattleya Schröderae, the large central plant having twenty-two flowers on a total of four spikes; these were very greatly admired. The rare Dendrobium Ainsworthii was also shown. Sophro-Cattleya Wellesleyae and Cypripedium Baldoran were good things in Messrs. Flory and Black's small exhibit. Mormodes colossus, with quaint, green flowers, was shown by Messrs. A. J. Keeling and Son.

The handsome Dendrobiums in Mr. Harry Dixon's group were excellent examples of D. Melpomene, D. Magda, D. Apollo var, grandiflora, D. Apollo var. albens, D. nobile virginale, and the free-flowering D. xanthocentrum. Messrs Sutton Bros. submitted a group of Cymbidiums, Laelio-Cattleyas, Cypripedium Maudiae, C. insigne Sanderae, Odontoglossums and Dendrobiums. In Messrs. Stuart Low and Co.'s group we noticed the yellow Brasso-Laelio-Cattleya Cissie, L.-C. Schröderae, Laelio-Cattleya Serbia, the old Laelia harpophylla, Bulbophyllum virescens and numerous Odontoglossums and Odontiodas.

Oncidium splendidum was well shown by Messrs. Cowan and Co., who also showed excellent Cymbidiums, some capital plants of Masdevallia Schröderiana, and the very pleasing Cypripedium Zeus.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. Arthur Turner, Lady Beatrix Stanley, Mrs. Ethel M. Wightman, Mr. G. W. Leak, Mr. H. J. Jones, Mr. J. M. Bridgeford, Mr. D. Ingamells, Mr. William Howe, Mr. W. A. Bilney, Mr. R. Findlay, Mr. Donald Allan, Mr. E. R. Janes, Mr. A. E. Vasey, Mr. James B. Riding, Mr. George Churcher, Mr. W. B. Gingell, Mr. D. B. Crane, Mrs. Helen Lindsay-Smith and Mr. W. P. Thomson.

Section B.—Mr. Gerald B. Loder (in the chair), Mr. E. A. Bowles, Mr. G. Reuthe, Mr. F. J. Preston, Mr. W. B. Cranfield, Mr. Mark Fenwick, Mr. L. R. Russell, Mr. E. H. Wilding, Mr. A. Bedford, Mr. T. Hay, Mr. Charles T. Musgrave, Mr. Reginald Cory, Mr. W. J. Bean, Mr. James Hudson, Mr. Clarence Elliott, Mr. G. W. Leak and Sir William Lawrence, Bart.

First Class Certificate.

Iris Wedgwood.—This valuable Iris, which received an Award of Merit on January 27, 1925, is generally supposed to be a cross between I. tingitana and I. Xiphium. In general appearance it is a stately Spanish Iris, though larger and, of course, earlier in flowering, and it has the additional advantage in that unlike the Spanish type, the forced flowers do not become speckled, but retain their beautiful blue colouring. Large quantities of Iris Wedgwood are now forced for sale in Covent Garden and other flower markets. An illustration and account of this variety appeared in *The Gardeners' Chronicle* of February 7, 1925. Shown by Messrs. Lowe and Shawyer.

Awards of Merit.

Carnation Vesta.—A very beautiful and fragrant, perpetual-flowering variety. The rounded, full flowers have broad, substantial petals which are prettily waved and broadly serrated. The colour is a rich rosy cerise, and the calyx is non-splitting. Shown by Messrs. C. Engelmann, Ltd.

Colchicum croaticum.—As was stated on the exhibitor's card, this is one of the spring Colchicums which continue to flower over a considerable period. The flowers are about the size of the common Crocus, though slightly more pointed. They are paper-white in colour and have regular grey lines. On an occasional flower there was a suggestion of a rosy tinge. Shown by Mrs. Dykes, Bobbingcourt, Sutton Green, Woking.

Crocus × chrysanthus Curlew.—This is apparently a cross between C. aerius and C. chrysanthus. The flowers are yellow inside with a deeper glow at the base, while the exteriors have fairly broad, feathered lines of purplish-chocolate on a whitish base. Shown by E. A. Bowles, Esq., Myddleton House, Waltham Cross.

Crocus gargaricus.—A very showy little species which produces several shining Buttercup-yellow flowers from each corm. It is said to be the only spring-flowering Crocus which bears its flowers in advance of the leaves. Also shown by E. A. Bowles, Esq.

Groups.

A very pleasant spring garden was made by Messrs. James Carter and Co. near the entrance. A smooth, green lawn of velvety texture and enviably free from weeds was restrainedly planted with Crocuses in various colours. Behind the level lawn a gentle rise, planted with batches of Crocuses and Snowdrops, giving place to dwarf Heathers, had a background of Conifers and other shrubs.

Spring flowers in pots, vases, and also planted out in fibre were also attractively shown by other exhibitors. The Central Gardens Supplies had attractive breadths of Crocuses, Primroses, with Ericas, against a dark green background. Messrs. J. Cheal and Sons attractively grouped Crocus versicolor and Crocus Sieberi with Iris reticulata, and also had good examples of various Saxifrages, such as Saxifraga Irvingii, S. kestoniensis and S. Stuartii. Mr. G. W. Miller staged many good Primroses and Polyanthuses with early

Tulips, while in a well-conceived little garden, Mr. F. G. Wood successfully blended the different shades in a collection of Blue Primroses, and he also showed Crocus versicolor in appropriate surroundings.

A particularly good exhibit, arranged by Messrs. Barr and Sons, included a collection of the fascinating dwarf Irises, of which the very best were I. Elegance, I. Rosalie, and I. olbiensis Socrates. Dicentra spectabilis, of grace and elegance, Crocus Susiana, C. chrysanthus Warley variety, and C. Golden Yellow, of very rich colour, were also of great attraction. At one end Messrs. Barr and Sons staged some good Hyacinths.

Alpines were shown in an increased quantity. At present Saxifrages are the most numerous, and of this genus Messrs. Tucker and Son included Saxifraga Mrs. Leng, S. Irvingii, S. Obristii, S. Faldonside, S. Petraschii, S. Burseriana tridentata and S. kewensis.

Mr. Clarence Elliott had a collection of choice varieties in pots and pans. These included S. Jenkinsae, S. Riverslea, S. kewensis rosea, S. Burseriana Gloria and S. Irvingii in flower, while there were fascinating little tufts of various crusted species and varieties.

In the front of a large collection of shapely little Conifers, Mr. G. G. Whitelegg displayed pans of alpines, principally good Saxifrages. Messrs. Wm. Cutbush and Son made an attractive rock garden of bold design, and planted it with suitable quantities of Iris Sind-pers, I. reticulata, Scillas and Primroses. In the background there were Rhodoras, Viburnum Carlesii, Ericas, Wistaria sinensis, Andromeda Polifolia and other shrubs.

In a collection of interesting shrubs and alpines Mr. G. Reuthe included a cone-bearing branch of the rare Abies Webbiana, and sprays of Abies religiosa, Pinus teocote and other Conifers. He also showed Camellias and Ericas. Messrs. L. R. Russell, Ltd., had a very showy group of forced shrubs. There were floriferous bushes of Prunus triloba fl. pl., Forsythia spectabilis, Camellias and Azalea indica varieties in quantity.

Cut sprays of Rhododendrons, shown by Messrs. Gill and Son, included a large quantity of brilliant trusses of R. Columbia, with R. arboreum varieties, R. nobleanum album and many sprays of Erica lusitanica. With the Rhododendrons they grouped vases of their fine strain of St. Brigid Anemone. Mr. F. Klinkert again showed good Topiary specimens in Box and Yew. Fresh Violets were shown by Miss E. Heathcote and Mr. J. J. Kettle. The variety Princess of Wales was represented by large and fragrant flowers, while Mrs. Lloyd George and the deep pink Cour d'Alsace were also freely shown.

Cyclamens of first-rate quality were staged by Messrs. Puttridge, Ltd., and Messrs. Blackmore and Langdon had large plants of an equally good strain in such varieties as Scarlet King, Giant Crimson and Salmon King. Opposite their superb collection of vegetables, Messrs. Sutton and Sons displayed a small collection of excellent Primulas. The large-flowered sorts included Etna, of vivid colouring, Royal White and Reading Blue, while the graceful Stellata varieties were represented by Coral Pink, Giant White Star and The Duchess.

Sir William Lawrence, Bt., sent from his famous garden at Burford, particularly well-grown plants of Correa Harrisonii, Acacia Drummondii and Prostanthera rotundifolia.

Carnations were staged in good, fresh colours by the usual exhibitors. Messrs. Stuart Low and Co. included vases of Eileen Low, Ruby Glow, Topsy and Fragrant Rose. The chief varieties shown by Messrs. Allwood Bros. were May Allwood, Edward Allwood, Topsy and Laddie. Messrs. C. Engelmann, Ltd., had vases of Maine Sunshine, Zorro a Fancy of uncommon colouring, and Dorcas and Brend of rich colours.

Probably for the last time this season, there were the usual collections of paintings of garden flowers and garden scenes. Besides these there was a valuable exhibit of water-colour paintings of Pears and Plums by Miss Frances Bunyard. These were exceedingly faithful representations, and, especially in the Plums, Miss Bunyard successfully portrayed the bloom on the fruits. A large exhibit of coloured photographs, by Messrs. Malby and Co. was also of great value and interest. This exhibit included many subjects, of which probably, the newer Roses attracted most attention, though all were admirable.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the chair), Mrs. Brodie, Mr. G. W. Leak, Mr. Wm. Poupart, Mr. Chas. H. Curtis, Mr. J. Jones, Mr. W. B. Cranfield, Mr. G. Churcher, Mr. F. Secret, and Mr. Simmonds (Secretary).

Award of Merit.

Narcissus March White.—A fine, bicolor Trumpet variety; the trumpet being of soft sulphur-yellow. The award was made for forcing for market. Shown by Messrs. R. H. Bath, Ltd.

Group.

The only collection of Narcissi was arranged by Messrs. R. H. Bath, Ltd. This included large vases of the Trumpet Daffodil March White, which received an Award of Merit. Brightness, a good Barrii variety, and Henry Irving, yellow Trumpet, were extensively shown, and there were vases of Darwin Tulips.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (Chairman), Mr. W. H. Divers, Mr. P. C. M. Veitch, Mr. George F. Tinley, Mr. John Basham, Mr. P. D. Tuckett, Mr. E. Neal, Mr. W. Poupart, Mr. A. Poupart Mr. J. C. Allgrove, Mr. F. Jordan Mr. A. Smith, Mr. J. Cheal, Mr. H. S. Rivers, Mr. E. Beckett, Mr. A. Metcalfe, Mr. J. Wilson, Mr. J. Weston and Mr. A. N. Rawes.

Groups.

Messrs. Sutton and Sons showed a collection of vegetables comprising 150 distinct kinds and varieties. This exhibit was displayed with great skill, many of the dishes being arranged on stands, and some on shelving, on a ground of black velvet, the clever disposition of the variously coloured subjects making a harmonious colour scheme. The quality was exceptionally fine in every case, demonstrating the excellence of the strains sent out by this famous seed house. At the back were arranged pyramids of such fine Broccoli as Winter Mammoth, Early White and Christmas White, the quality of the last being extraordinarily fine. Leeks, also of the largest exhibition size, showed up conspicuously with splendid Celeries, Dwarf Blood Red Pickling Cabbages and Kales with variegated foliage. Prominence was given, in the foreground, to immense Onions of the Selected Ailsa Craig type, and a selection of the firm's Onion numbered 94. Potatos included most of the best sorts in cultivation. Improved Hollow Crown Parsnips, Matchless and Fillbasket Brussels Sprouts, Earliest Purple Kohl Rabi, and A.1. Tomatos are deserving of special mention. There were excellent dishes of Mushrooms, Beets, Seakale, Shallots, Garlic, Endives, Asparagus, Turnips, Lettuces and other popular vegetables.

Messrs. Dobbie and Co. showed eighteen varieties of Potatos that had been placed in cold storage, the excellence of the tubers showing that this treatment is adaptable for the preservation of Potatos in the best condition late in the season. The sorts included Great Scot, Catriona, Arran Comrade, Majestic, Arran Rose, Mauve Queen and Kerr's Pink.

Mr. J. C. Allgrove displayed seventy-two varieties of Apples and Pears. The quality and extent of this exhibit were the subject of much comment, for 1926 was a notoriously bad fruit year, especially for Apples. Yet the quality was superb, and the use of a white ground and decoration of Palms, Panicum, Selaginella and Aglaonema costatum added to the effectiveness of the group. Outstanding varieties of Apples were Bramley's Seedling, Lane's Prince Albert, Newton Wonder, Ontario, Bismarck, Annie Elizabeth, Wealthy, Golden Noble, Lord Derby, Barnack Beauty, Baxter's Pearmain, Cox's Orange Pippin and Hoary Morning. Pears included excellent fruits of Doyenné d'Allencon, Bellissime d'Hiver, Olivier de Serres, Cattilac, Josephine du Malines, and Duchesse de Bordeaux.

Messrs. S. Rivers and Son showed trees bearing Oranges, Lemons and other Citrus fruits, also many gathered fruits of the same, the whole exhibit being very interesting and educational. The best fruited trees were St. Michaels and Dulcissima Oranges. The choicest of the gathered Oranges were Sustan, Long Orange, Thomson's Improved, Navel and Egg Orange. Citrons (Citrus Medica), Limes, Sweet Limes, White Lemon and Shaddock (Citrus decumana), were all shown well.

ANNUAL MEETING.

The annual meeting was held at 3 p.m., in the Lecture Room. There was a large attendance, and many who were unable to enter the room crowded about the doorway. The chair was taken by the President, Lord Lambourne, and he was supported by the members of the Council. After the minutes of the last annual meeting had been signed, and one-hundred-and fifty-seven new Fellows elected, his Lordship proceeded to comment on the Annual Report of the Council for 1926. He started by facetously observing that they hoped to meet in the new Hall in a year or two, for Mr. Musgrave had already let a good many of the rooms, and he caused amusement by stating that he welcomed them at the annual meeting for the 123rd time. He was glad to inform the Fellows that the Society had moved forward in a very pleasing way, thanks to the efficiency of the Council and officers, and also to the spread of the love of gardening. His Lordship referred to the loss of prominent members of the Society, especially mentioning the late Sir George Holford, Professor W. Bateson, Rev. J. Jacobs, and Mr. J. F. Bennett Poe. He stated that progress with the new Hall was entirely satisfactory, and that there was every prospect of the contractors fulfilling their undertaking to have the building completed by May, 1928. They had no doubt they would be able to fill every inch of the hall and be better able to accommodate the kindred societies.

He was glad to know that the shows had been successful; no fewer than 100,000 people visited the Chelsea exhibition. In order to make for the greater convenience at that show the Council had leased an additional piece of ground, which would serve to accommodate tents for tea and a band. This year there would be a private view of the show for the Fellows from 9 a.m. till 12 noon. Lord Lambourne stated that two new shows had been added to the Society's programme, and referred to the near completion of the Catalogue of the Lindley Library and Pritzel's *Iconum*; with reference to the last work he said the entries already numbered half-a-million. In moving the adoption of the Report, Lord Lambourne said the Council looks forward to even greater prosperity in the future.

The adoption of the Report was seconded by Sir William Lawrence, who proceeded to give some details of the Balance Sheet. He said the financial statement contained a few new features; for example, there was now an entry on account of ground rent of the new Hall, and an increased cost of painting the certificated plants. The cost of the revision of the Pritzel's *Iconum*, although not entirely settled, would only mean a small sum in the future, but constant revision would be necessary. The roof of the Hall had been re-glazed at a cost of £2,500, but that had been met out of the account put aside for depreciations. They had built six new cottages at Wisley, made there one of the best Alpine houses in the country, and incurred further commitments in appointing a Keeper of the Gardens, and were now about to appoint a Keeper of the Laboratories for conducting research work, and extending the training of the students. They had invested funds of some £44,000, and a general reserve fund of £80,000. The certificates of the Architects in respect of work completed on the new Hall amounted from £7,000 to £10,000 a month. The Society was completely solvent.

He concluded by saying that the success of the Society was, in a great measure, due to their excellent President, and their chief watch-dog, Mr. Frank Reader, the Cashier, the mention of whose name evoked much applause.

The appointment of the President, Council and Officers was carried without comment, and the President then proceeded to hand the medals and other awards made by the Council: the Victoria Medal of Honour in Horticulture (the highest honour the Council can confer), to Mr. H. G. Alexander, Mr. W. W. Pettigrew, Mr. Alfred Watkins, Mr. W. E. Wallace, Mr. C. T. Musgrave, Mr. R. L. Harrow and Professor Theobald; the Gold Veitch Memorial Medal to Mr. Henry B. May, V.M.H., and to Mr. James Hudson, V.M.H., for life-long services to horticulture; to Mr. George Forrest, for his explorations and introductions; and to Rev. G. H. Engleheart, for his work on Daffodils. The Silver Veitch Memorial Medal and £25 was awarded to Mr. W. Camp, who was, unfortunately, too indisposed to be able to attend but was represented by his son; and a similar award to Miss Matilda Smith, the famous botanical artist who, alas! died a few weeks after the Council decided to confer this honour upon her. Dr. Hill, of Kew, agreed to convey the Medal to the sister of the deceased lady.

Other awards were the Moore Medal, won curiously enough by the donor, Mr. G. F. Moore, for his Cypripedium Sir Trevor—the finest Cypripedium of 1926. Mr. Leak received the Lawrence Medal on behalf of his firm, Messrs. R. H. Bath, Ltd., whose Daffodil exhibit on April 7, was considered the best of the year. Mr. Hay agreed to forward the Cory Cup to Mr. F. Howard for the bigeneric hybrid Crinodonna Memoria-Corsii, the best new plant shown at R.H.S. meetings in 1926. Unfortunately, Mr. Lionel de Rothschild could not be present to receive the beautiful Loder Cup awarded to him for his work in furthering all movements for the introduction and cultivation of Rhododendrons.

Mr. R. Fife rose to ask "whether the special judges appointed to recommend awards in the case of Rose trials now being conducted at Wisley made any recommendations, and if so, what is the nature of them, and are they likely to be given effect to?"

Mr. F. J. Chittenden, Director of Wisley Gardens, said the recommendations had been acted on, and Mr. Fife asking to what extent, elicited the reply from Mr. Chittenden: "As far as possible."

Mr. Fife said he was not satisfied with the answer, and he moved: "That the special trial of Roses now being conducted at Wisley be abandoned."

He said he was strongly in favour of competitive trials provided they were carried out on suitable soils, for all benefited by a proper trial of any plant. He advocated last year that the Rose trial should be scrapped, for the Roses were planted in soil that was unsuited to them, and they made little growth, while disease had been rampant. Roses, he said, cannot be expected to grow in sand. His only object in raising the point was to state the facts to the Council and Fellows. He saw the trial so recently as Saturday, the 5th inst., and he determined to bring the matter before the meeting in the interests of horticulture and the Society.

Mr. E. Charrington seconded, considering the suggestion a wise and sensible one. Mr. W. Easlea moved an amendment to the motion. He said the first plantation of Roses had been a great success, and it seemed as if Mr. Fife had a grudge against Wisley. He, Mr. Easlea, had been a juror of the trials since the commencement, and as one who had thirty to forty years' experience in growing Roses, he considered the Roses had made splendid growth. The other part of the Rose garden could be made suitable by cultivation and manuring. The trial garden should be extended right and left, and if the ground was prepared in spring, allowed to lie fallow all the summer, and planted in the autumn, the Roses would succeed. A point he stressed was that Roses entering the trial from the Continent should be disinfected, as many were badly diseased.

The amendment was seconded by Mr. A. Wood.

After further discussion, Mr. R. Wallace stated that Mr. Fife had asked what the recommendations of the judging committee were, and could Mr. Chittenden give them. Mr. Chittenden was understood to say that the recommendations of the judges had not come before the Wisley Committee. He tried to prove that the trials having shown which were the best Roses out of some five hundred, had served their purpose, and pointed out that there was a vast difference between a Rose trial and a Rose garden, and that the varieties selected from the Rose trials by the judges as being most suitable for garden decoration had been a great success when planted in the Rose garden at Wisley.

Mr. Fife did not appear to be satisfied; the discussion was brought to an end by the President who assured Mr. Fife that the matter would receive the earnest consideration of the Council.

A vote of thanks to Lord Lambourne for presiding brought the meeting to a close.

NATIONAL CHRYSANTHEMUM.

In the absence of the President, Mr. E. F. Hawes occupied the chair on the occasion of the Annual General Meeting of the National Chrysanthemum Society, held at Essex Hall, Strand, on Monday evening last. The attendance was small, only twenty being present, but this was not surprising considering the atrocious weather experienced throughout the metropolitan area on that day.

The principal business was the presentation of the Report of the Committee and the Statement of Accounts for 1926. These were read by the Secretary. The Report stated that the Floral Committee had considered the merits of no fewer than one hundred-and-twenty novelties during the past year, and awarded thirty-seven First-Class Certificates and three Commendations. Decorative and Single varieties were those that found most favour. The exhibition held at Westminster in November was a good one, but not quite so good as some of its immediate predecessors, and the attendance showed some reduction owing to the inclement weather of the second day. The Committee tendered grateful thanks to Sir Jeremiah Colman, Bart., for his generous interest in the Society during his three years' Presidency, and it endorsed the nomination of Sir John Ward as successor to Sir J. Colman. Thanks were also offered to Mr. Falkner and Mr. B. Carpenter for special services rendered. Sympathetic reference was made to the losses sustained by the deaths of Mr. Harry Woolman and Mr. T. W. Sanders, two enthusiastic friends of the Society.

The accounts showed £100 12s. 6d. received as subscriptions; £23 17s. 6d. for affiliation fees; £79 for special prizes; £80 4s. 0d. income from takings at the show, sale of tickets and entry fees; and £25 8s. 6d. for medals; there were other items making a total of £362 5s. 7d. On the expenditure side printing and stationery come to £35 18s. 9d.; medals, cups and engraving, £47 7s. 3d.; prizes, £124 18s. 6d.; show expenses, including hire of the Royal Horticultural Society's Hall, etc., £22 12s. 6d.; Secretary, £50. The total expenditure amounted to £296 7s. 11d., leaving a balance at the bank of £65 17s. 8d. The Society has also a reserve fund of £100, and the balance sheet showed a surplus of assets over liabilities amounting to £192 4s. 8d.

The Chairman, in moving the adoption of the Report and Audited Accounts, briefly reviewed the principal items of the Society's work; this was seconded by Mr. Runcieman and carried.

The election of officers and Committee was then proceeded with. The Hon. Sir John Ward was unanimously appointed President; Mr. D. Ingamells, Treasurer and Vice-Chairman; Mr. E. F. Hawes, Chairman of Committee; Mr. Charles H. Curtis, Secretary and Editor; and Messrs. Witty and Bayly, Hon. Auditors. The eligible retiring members of Committee were re-elected, and Mr. Vinten, Mr. Connor and Mr. J. Woolman were elected to fill vacancies arising.

Thanks were accorded Sir Jeremiah Colman, the officers and Committee, and the Auditors for services rendered.

At the conclusion of the general business, Mr. D. B. Crane gave a very interesting address on "Old-time Chrysanthemums." He had been at considerable pains to prepare his subject, and all present regretted the small attendance to hear him. Mr. Crane reviewed the work of such raisers as Mr. R. Owen, Messrs. Drover, Mr. Weeks, Mr. Nicholson, Mr. M. Silsbury, Mr. Charles E. Shea, Mons. Calvat, Mr. Pockett, and others, and the earlier work of Mr. Godfrey, Mr. N. Davis, and Mr. H. J. Jones. The names of varieties once famous on the show boards brought to the minds of the older members present many interesting events in Chrysanthemum history of a quarter-of-a-century or more ago, and by comparison with modern varieties, these served to show the wonderful improvements made.

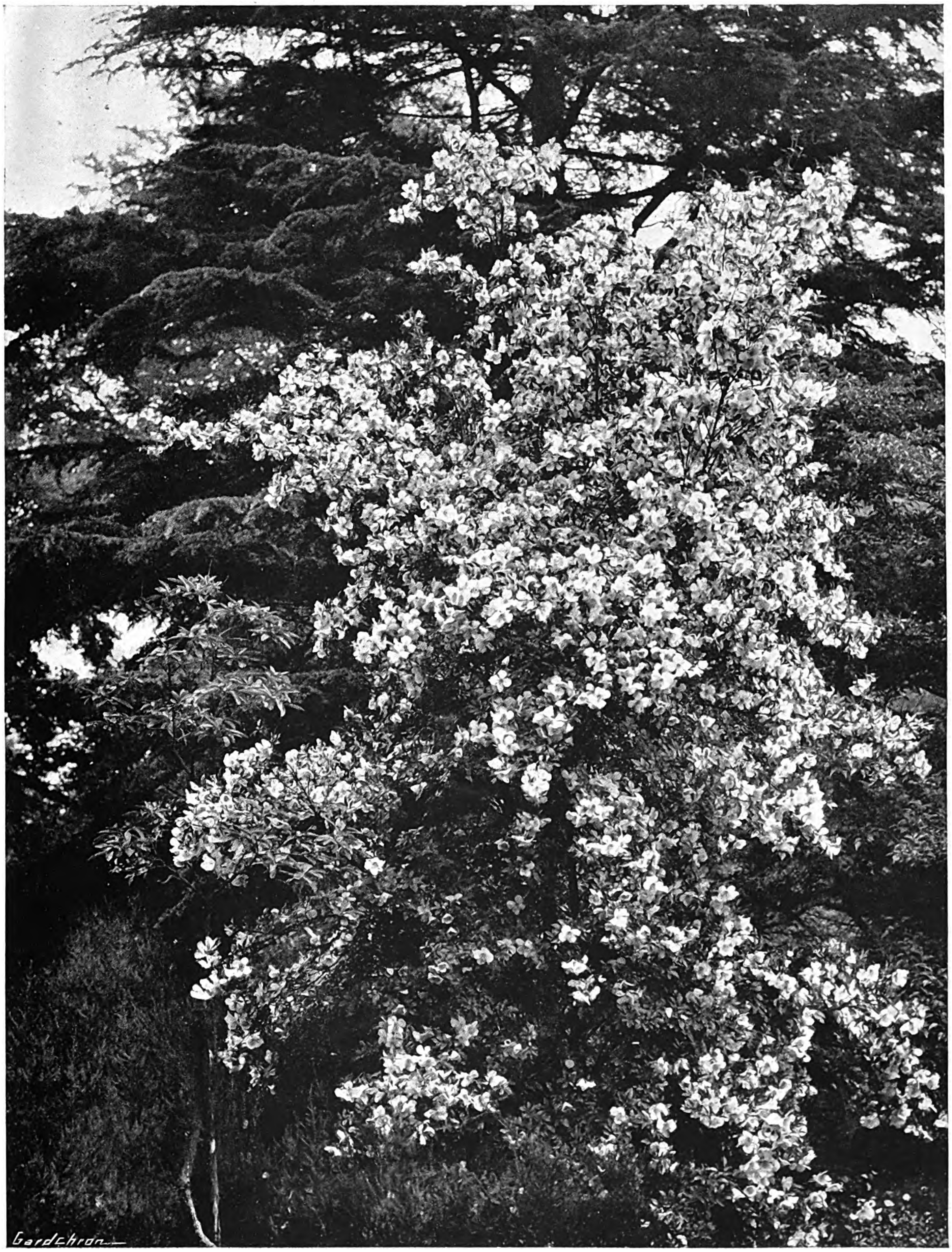
Mr. Stevenson pointed out that some of the old varieties mentioned were still grown largely for cut flowers for market, and stated that the incurved variety Charles H. Curtis was one of those most extensively grown in the United States for the cut-flower trade. A cordial vote of thanks was passed to Mr. Crane for his address, and a similar vote to the Chairman concluded the proceedings.

Obituary.

Charles Vuylsteke.—We have to mourn the passing of yet another veteran of the horticultural world—the celebrated orchidophile, M. Charles Vuylsteke, of Loochristy, Belgium, one of the foremost of the pioneer hybridists of the nineteenth and early twentieth centuries. Born in 1844, young Vuylsteke worked under his father in the houses at the Château of Loochristy at an early age, and at fourteen was already an idealist in horticulture, longing to produce only what was best and most beautiful among the fruits which were then his favourite subjects. At twenty, his attention was turned to the cultivation of Azaleas and Rhododendrons; and still pursuing his early ideals of beauty in form and colour, he produced some new varieties which are still cultivated and appreciated for their good qualities. Eight or nine years later, still seeking fresh outlets for his boundless energy and unsatisfied creative instincts, he began to devote himself to the cultivation of Palms, Araucarias and Amaryllis, obtaining seeds from Australia, Brazil, the Sandwich Isles and elsewhere in the hope of discovering new and beautiful forms. Disappointments were bound to occur, but Vuylsteke was not discouraged, and managed in time to establish an exchange system with a number of the best botanic gardens, on whom, for the seeds they sent him, he bestowed choice and welcome plants of Begonias, Pelargoniums, etc., from his nursery. In 1878, the nursery he had owned for a number of years, appearing to him too small for his still undiminished energies, he bought new ground which he occupied until his death, and which, with late additions, extended finally to ten hectares. Some years after this, still seeking "new worlds to conquer," he imported from Columbia some cases of Odontoglossums, probably little guessing the important part they were to play in his subsequent career. He gradually became more and more absorbed in the cultivation of Orchids, and in 1892, obtained two or three seedlings of Odontoglossums, hybrids of O. grande var. Leopardinum × O. crispum—a success which formed an epoch in Orchid cultivation, and from which Vuylsteke never looked back, devoting himself heart and soul to this new and fascinating occupation. In 1898 he exhibited in England a plant which caused a sensation—a hybrid between O. Pescatorei and O. Harryanum, which he dedicated to Mr. Rolfe, and in 1899, at the Mont-St.-Amand, exhibition in Belgium, he showed, in a glass case, the hybrids obtained up to that date, which were the admiration of all who saw them, and which won for him the Grand Prix d'Honneur. From this triumph he may be said to have gone on from strength to strength, and at every exhibition of importance his hybrid Orchids had pride of place. The Ghent Floralies of 1923 saw the culminating point of his career; no one who saw his exhibit at that show can possibly forget the superb mass of glorious blossoms, all of his own raising, all perfect of their kind, but of a bewildering diversity of form and colour. He had received many honours, including the Order of Leopold, Order of St. Stanislas, Mérite Agricole of France, and Légion d'Honneur.

Feb. 19, 1927

Supplement to the GARDENERS' CHRONICLE.



EUCRYPHIA PINNATIFOLIA.

THE
Gardeners' Chronicle
No. 2095.—SATURDAY, FEBRUARY 19, 1927.

CONTENTS.

Alpine garden—
  Cerastium alpinum lanatum 128
Books, notices of—
  Inorganic Plant Poisons and Stimulants 123
  Iris Society's Bulletin 124
  Tuinbouw Jaarboek 132
Borthwick, Dr., presentation to ... 124
Buddleia Forrestii and B. Fallowiana ... 136
Bulb garden—
  Crocus laevigatus ... 127
  Two good Daffodils for forcing ... 127
Calcium cyanide, the destruction of rats with 136
Citrus fruits at Porlock 135
Covent Garden Market Bill withdrawn ... 123
Dombeya Cayeuxii ... 124
Economic plants of the Bay Islands ... 133
Elm disease, the Dutch 133
Farrer's plants at Exbury 132
Florists' flowers—
  The double Wallflower 128
Flower garden—
  Verbena venosa ... 128
Flower pictures at the Mansard Gallery ... 124
"Gardeners' Chronicle" seventy-five years ago 125
Gardeners' Royal Benevolent Institution, help for the... ... 123
Glasnevin, notes from 129
Hardy flower border—
  Campanula glomerata 128
Kelway, Mr. William 124
Lathyrus tuberosus ... 136
Nursery notes—
  Primulas at Forest Hill 134
Obituary—
  Horton, John ... 138
  Muller-Thurgau, Dr. 138
  Robinson, Mrs. Francis 138
Parks and gardens, public 134
Pettigrew, Mr. W. W., presentation to ... 123
Promise and performance 135
Salvia virgata nemorosa 135
Societies—
  Association of Economic Biologists ... 138
  Glasgow and West of Scotland ... 138
  Guildford Chrysanthemum 136
  Manchester and North of England ... 136
  Orchid Club ... 136
  Royal Gardeners' Orphan Fund ... 137
  Watford Horticultural 137
Trees and shrubs—
  Buddleia globosa ... 128
  Jasminum revolutum 129
  Rhododendron praecox 129
Trenching, deep ... 135
Vegetable garden—
  Spinach and some Spinach substitutes 135
Viburnum fragrans ... 135
Viola and Pansy Society for the south of England... ... 124
Ward's, Mr. F. Kingdon, ninth expedition in Asia ...130
Week's work, the ... 126

ILLUSTRATIONS.

Colchicum croaticum 127
Cypripedium Mrs. Eley var. W. G. 125
Elm, transverse section of trunk of a diseased... ... 133
Galanthus Magnet in the Glasnevin Botanic Gardens... 128
Kelway, Mr. W., portrait of 124
Viburnum grandiflorum in the Glasnevin Botanic Gardens 129
Ward's, Mr. F. Kingdon, expedition: views of 130, 131

SUPPLEMENT PLATE.

Eucryphia pinnatifolia.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39·9°.

ACTUAL TEMPERATURE— *The Gardeners' Chronicle* **Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 16, 10 a.m. Bar. 30·5. Temp. 44°. Weather, Misty.**

Plant Poisons.

SCIENCE in the early days of its development charms us by the seductiveness of simplicity; but as it matures, though we may still admit the charm, the simplicity is seen to be illusory. It is a very complicated world we live in, and science, sooner or later, finds it out. Reflections of this kind are inevitable to anyone who reads Dr. Brenchley's recently published edition of Plant Poisons.[*] What is a plant poison? Is it anything that may injure it? Then every "plant food"—salts of nitrogen, potash salts or phosphates, without which no plant may live, may be shown to act poisonously upon occasion. Thus any one of these essential food materials if associated with due proportions of the others, acts beneficially, but an equal quantity of it may, if unaccompanied by the others, act as a poison. Furthermore, ordinary plant poisons, arsenical copper and other compounds are not all alike in their action on plants. Some, viperously inclined, exercise their poisonous effect even when supplied in exceedingly minute quantities, and if the concentration in the soil becomes yet further reduced, end by producing no effect on the plant; impotent now from evil they cannot yet do good. Other poisons, however, though ordinarily inimical to plants, become, as it were, converted from enemies to friends by the simple process of dilution. In other words, though they are poisons even in very dilute solutions, they become actually helpful to the plant when they are supplied to it in solutions yet more dilute. How sensitive are plants to the action of poisons may be judged from figures given by Dr. Brenchley. One part of copper sulphate in one million stops all growth in Barley. This, however, occurs only if the plant lacks the encouragement provided by nutrient salts, for if the latter are present, a solution of copper sulphate four times as strong fails to stop growth, and only succeeds in retarding it. Of substances which are both toxic and stimulatory, manganese provides an interesting example. It is easy to show that salts of this element may retard growth and yet there is a wealth of evidence to show that in certain concentrations and in certain plants manganese acts as a stimulator. So markedly is this so that the use of manganese salts has often been recommended as a means of increased crop-production. Wheat, and root crops such as Potato and Sugar Beet are said to respond kindly to small dressings of manganese fertilisers. But of all inorganic plant poisons boron is perhaps the most interesting. That it may exercise disastrous effects on crops was discovered by American growers during the war. As Dr. Brenchley points out, the wide-spread injury which Maize, Potato and other crops sustained in the United States was traced to the use of potassic fertilisers, which for some reason or another contained about 1·63 per cent of borax. The leaves of the plants treated with this impure fertiliser turned yellow, the crops failed, and the vendors of the fertilisers had to pay compensation. And yet, as Dr. Brenchley herself has shown, boron, if applied in small quantities, appears to exercise a beneficient effect on many crops, and still more remarkable, seems to be essential for the proper development of certain Leguminous crops—Peas, for example. Grown without any trace of boron, Peas fail to develop properly. The root nodules are few and relatively puny, but a trace of boron restores them. The root nodules grow vigorously, nitrogen fixation is accelerated, and therefore it is not unreasonable to claim that boron must be added to the list of mineral substances which are essential to plant growth. In the light of such facts as these it must be admitted that there be more things in heaven and earth than are yet writ down in our philosophy!

Our Supplement Plate.—With this issue we present our readers with a supplementary illustration of the beautiful Eucryphia pinnatifolia. On January 15 we published an illustration (Fig. 29, p. 51), showing a life-sized spray of flowers of this Chilean shrub, to which the present reproduction will form a pleasing and useful companion. The plant now figured is, in its season, one of the attractions at the Royal Gardens, Kew.

Presentation to Mr. W. W. Pettigrew, V.M.H.—As a mark of their esteem and as a personal recognition of the honour—Victoria Medal of Honour in Horticulture—conferred upon their Superintendent, Mr. W. W. Pettigrew, five hundred members of the Manchester Parks and Cemeteries Department recently attended a meeting at which Mr. and Mrs. Pettigrew were each presented with a suitably inscribed gold watch as souvenirs of the occasion. In making the presentations, Alderman T. Fox, O.B.E., Chairman of the Manchester Corporation Parks and Cemeteries Committee, referred to the wonderful spontaneity of the response by the staff to the suggestion that some tangible evidence of their regard should be given to Mr. Pettigrew on the occasion of his receipt of the highest honour British horticulture can confer.

Covent Garden Market Bill Withdrawn.—At an Extraordinary General Meeting of the Beecham Estate and Pills Co., Ltd., on the 16th inst., the Chairman, Mr. Edmund Spyer, stated that the Parliamentary Bill dealing with the proposed transference of the Covent Garden Market to the site of the Bloomsbury Foundling Hospital had been withdrawn. He stated that they had been strenuously opposed by those from whom they had expected support and it was useless trying to get the Bill through. The strong opposition was reflected in the large number of petitions against the Bill which included those from the Covent Garden Tenants' Association, the British Florists' Federation, the Retail Fruiterers' and Florists' Association, the London and Professional Fruit Buyers' Association, the London County Council, the Holborn Borough Council, West Ham Corporation, the National Farmers' Union, Garden Committees of Brunswick and Mecklenburgh Squares, Chelsea Borough Council, Westminster City Council, L.M.S. Railway, G.W.Railway, L.N.E.Railway, Southern Railway the Metropolitan Railway Company, Corporation of London, the Governing Body of Rugby School, the Royal Free Hospital and the St. Pancras Borough Council.

Help for the Gardeners' Royal Benevolent Institution.—Another demonstration of the valuable assistance gardeners are able to render to the horticultural charities has come to our knowledge, and we gladly bring it to the notice of our readers, not only because it deserves publicity, but also in the hope that such publicity may encourage others to "go and do likewise." Mr. C. H. Cook, gardener to His Majesty The King, together with the garden staff at the Royal Gardens, Windsor, organised a whist drive and dance, which was held in the Guild Hall, Windsor, on February 10. Thirty-three tables were occupied by the whist players, and at the same time sixty-five couples danced in the Council Chamber to music provided by an excellent local band. When the prizes were distributed, Mr. C. H. Cook thanked those present for their attendance and help, and explained the work of the Gardeners' Royal Benevolent Institution. We understand that this charity will benefit to the extent of £40, and that Mr. Cook has been urged to organise similar functions at no very distant date.

Effect of the January Hurricane in Northern Scotland.—A run through the devastated woodlands in the North of Scotland ten days after the hurricane of January 29, revealed to me, writes a correspondent, the considerable and widespread havoc wrought on many famous forests. Aberdeenshire, Banffshire, Morayshire, Nairnshire and Ross-shire—counties that have great reason to be proud of their magnificent timber—have all suffered grievously, and thousands of "monarchs of the woodlands," after surviving the blasts and storms of over a century, have been laid low. At Aberlour, Banffshire, the beautiful and finely-wooded demesne of Sir John Findlay, Bart., much havoc has been done, and thousands of trees blown down in the different woods. At what is known as The Triangle, the fine avenue leading from there to Aberlour House, marked evidence is shown of the wind's devastating fury by the great number of stately Spruce trees, many over a century old, that have been uprooted and broken. Passing on to the district known as "Bonnie Strathspey," where the woodlands are the most extensive and most valuable in Britain, whole areas of fine Larch and Fir trees have been levelled. In the Culreach and Balliefurth woods great damage has been wrought. The majority of the giant Beech trees in the avenue of Castle Grant, the ancestral home of the Earls of Seafield, crashed during the height of the gale. At Ballindalloch Castle the chief Scottish seat of Sir George Macpherson Grant, Bart., hundreds of trees were blown down in the main drive, and the woodmen will have their hands full there for some time to come. At Kingussie, trees which have stood the test of last century's gales were uprooted as if they were saplings. On the estates of Altyre and Relugas, too, considerable damage was done, many fine trees being cast down. In the fine woods of Gordon Castle, the chief Scottish seat of the Duke of Richmond and Gordon, a severe toll was taken, including several of the gigantic specimens within the Castle grounds, which were always a source of great admiration to visitors. The woodmen on the various estates will be occupied for weeks in removing the fallen timber, helped, no doubt, by the poor cottars and villagers in the respective areas, whom one can forgive crooning to themselves the old Scottish adage—" It's an ill win' that blaws naebody guid." Fortunately, serious accidents to life and limb were few in the north and north-east, compared with the lamentable record in the south-west and midlands of Scotland. The gale at its height travelled along the " Great Fault," which seemed to act as a funnel, and geologists declare that the mountain range of the Grampians, which cross Scotland and run into the sea at Aberdeen, formed during the most trying period a bastion that considerably moderated the velocity of the wind in the north-east. Be that as it may, the velocity of the wind recorded at the Aberdeen Meteorological Station, King's College, was at times considerably over fifty miles an hour, but this was less than half the record—102 miles per hour—registered on the instruments at the Coats Observatory, Paisley, in the West of Scotland.

---

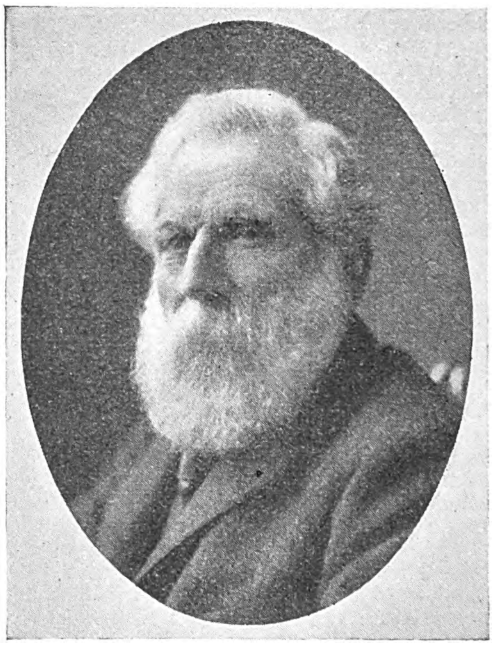
[*] *Inorganic Plant Poisons and Stimulants*, by Winifred E. Brenchley, D.Sc., Cambridge University Press, 1927. 10s. 6d. net.

Dombeya Cayeuxii.—At the meeting of the Royal Horticultural Society held on January 12, 1926, a plant exhibited by Lord Glanely under the name of Dombeya Glaneliae was provisionally given an Award of Merit, subject to its being correctly named (see *Gard. Chron.*, vol. LXXIX, p. 53, and p. 63, Fig. 32). The Secretary of the Royal Horticultural Society now informs us that " it has now been definitely established that the plant is Dombeya Cayeuxii, a hybrid between D. Mastersii and D. Wallichii, first raised by M. H. Cayeux at Lisbon. It was described and figured in the *Revue Horticole*, 1897, p. 545." This finding is in accordance with the information received from M. Cayeux and published in *The Gardeners' Chronicle* of February 6, 1926, when D. Wallichii, one of the parents, and D. Davaei, another hybrid Dombeya, were figured.

Acacia Hanburyana.—When an error of omission or commission occurs in *The Gardeners' Chronicle*, whether due to the mischance of our contributors or ourselves, a correction is invariably forthcoming from one or more of our wide clientele of readers. In the case of Buddleia Forrestii and B. Fallowiana the unwitting error of a careful correspondent led to the discovery that the plant widely distributed and known under the first name was none other than B. Fallowiana. Acacia Hanburyana, described in our issue of January 29, and figured on p. 95, affords another instance of the ease with which an error may be made, and the fallibility of memory. On the authority of Mr. Braggins, we stated that Acacia Hanburyana was a natural hybrid (A. Baileyana × A. podalyriaefolia) that appeared many years ago at La Mortola; now comes a letter from Mr. Joseph Benbow, formerly Superintendent of the Gardens at La Mortola, confirmed by Commendatore Cecil Hanbury, M.P., stating that Acacia Hanburyana was raised some twenty years or so ago by the late Mr. Ludwig Winter, of Bordighera, Italy, who gave its parentage as A. dealbata × A. podalyriaefolia, and named it in honour of the late Sir Thomas Hanbury, the founder of the famous establishment at La Mortola. Mr. Ludwig Winter raised other hybrid Acacias, but none so beautiful as A. Hanburyana.

A Viola and Pansy Society for the South of England.—It will be of interest to many of our readers to learn that there has been formed The London and South of England Viola and Pansy Society. At its exhibitions there will be separate classes for bedding Violas as well as for varieties which are grown exclusively for exhibiting. One of the objects of the Society is to encourage raisers to produce Violas of short, tufted growth, suitable for bedding, which, with special cultivation, will produce blooms of good size for the show table. The first exhibition will be held on July 19, 1927, in connection with the R.H.S. Show, at Vincent Square. The minimum subscription to the Society is 2s. 6d. The Hon. Secretary is Mr. John H. Little, Brent Tor, Brentwood Road, Romford, Essex.

Mr. William Kelway.—It is with very great pleasure we are able to publish a portrait of Mr. William Kelway, the veteran horticulturist who retired last year from the proprietorship of the firm of James Kelway and Son, of Langport, Somerset. Mr. W. Kelway is in splendid health, and notwithstanding his advanced age—he was born in 1839—he scorns the use of an overcoat even in wintry weather. His father, James Kelway, founded the business in 1851, and father and son made the name of Kelway famous in the horticultural world by their work in the improvement of Gladioli, Paeonies, Pyrethrums and other popular garden flowers. The present proprietor, Mr. James Kelway, is maintaining the traditions and extending the success of the business founded by his grandfather, and so ably conducted by his father over a long period of years.



MR. WILLIAM KELWAY.

Contact Insecticides.—At the next meeting of the Association of Economic Biologists, to be held at 2,30 p.m., on February 25, at the Imperial College, South Kensington, Mr. F. Tattersfield and Mr. C. T. Gimingham will read a paper on " Laboratory and Field Experiments on Contact Insecticides."

Flower Pictures at the Mansard Gallery.—Quite a choice little collection of flower paintings has been brought together at the Mansard Gallery, 1926, Tottenham Court Road, W.1, and is to remain there until March 19. There are under a hundred pictures, mainly of a pleasing and unambitious kind, by modern, but not too modern, artists; the smallness of the exhibition makes for a pleasant intimacy and for the absence of that tendency to adverse criticism which springs from fatigue in the critic. A good general level of quality is maintained, but many of the subjects chosen are too frequently employed by artists; Anemones and Marigolds have been seen in too many floral groups to attract attention unless treated in a very original style. " Summer's Farewell," by Anna Airy, shows late summer and early autumn blooms in a vase, while some dead Roses lie on the table beneath. The same artist's " Golden September " depicts a fruiting branch of Plums, both leaves and fruits considerably disfigured by the attacks of caterpillars; a well-executed piece, but not very decorative. A more conventional picture in the same style is a branch of Apple blossoms against a blue sky, by E. C. Austin Brown. Unusual subjects pleasingly treated are Nemesias in a blue vase, and pink-mauve Mallows in a glass jar against a deeper mauve background, the green leaves throwing up the maincolour; these are by Miss E. B. Dawson. Miss Gluck's Camellias and Snowdrops make two decorative studies in dead white against a dark background, and Cedric Morris' Mourning Irises, though a little sombre, are sympathetically done. There are several wood engravings, among which we especially noticed Miss Lily Blatherwick's " February Fairmaids," and John Platt's " Red Chestnut," a colour wood-cut depicting a cat lying in the bough of a flowering Chestnut tree, greedily watching two birds soaring in the air above.

Presentation to Dr. Borthwick.—At the annual meeting of the Scottish Arboricultural Society the President, Sir Hugh Shaw Stewart, on behalf of the Society, presented Dr. A. W. Borthwick, Professor of Forestry, Aberdeen University, with a writing table and chair as a testimony of their regard and respect and gratitude for his services to the Society as honorary editor of the *Transactions* for fifteen years. The writing table and chair were made in Edinburgh from Scotch-grown Laburnum.

The Iris Society's Bulletin.—The Iris Society of which Mr. G. L. Pilkington is President and Hon. Treasurer, Mr. G. N. Bunyard, Hon. Secretary, and Mr. Geo. Dillistone, Hon. Editor, is to be congratulated on the excellent December issue of its *Bulletin*, being No. 4 of the publication. All who are interested in this beautiful genus will find much that is of interest to them in this publication and the various articles cover a wide field. The Society has already instituted a medal to be known as the Dykes Memorial Medal, to commemorate the valuable work on Irises done by the late Mr. W. R. Dykes. They now propose to institute a new medal, the Foster Medal, in memory of the late Sir Michael Foster. The Dykes Memorial Medal will be awarded to " meritorious exhibits of Irises, or for any signal advance in the way of hybrids that may undergo a test in the Society's trials." The Foster Medal is to be reserved for a special and personal award to anyone contributing to the advance of the genus, hence it is of world-wide and international interest. Amongst the several articles by experts are " Easy Water Irises." by Mr. R. E. Spender; " Iris laevigata," by Mr. C. W. Christie-Miller; " Eelworms in Iris Rhizomes," by G. P. B.; a lengthy account entitled " Report on Irises," by Mr. P. J. Murrell, in which varieties seen in France, at Mr. Geoffrey Pilkington's Gardens, Woolton, Mr. G. P. Baker's Gardens, Sevenoaks, at Mrs. Dyke's garden, Sutton Green, and Mr. Bliss's garden, Morwellham, are described. Apparently the most outstanding variety at present in cultivation is W. R. Dykes, which was illustrated in *The Gardeners' Chronicle*, June 19, 1926. The writer states: " all other yellows are trivial compared with this. It is an amazing achievement, and no ordinary description can do it justice." He states that, in his opinion, the best of Mr. Bliss's varieties still hold their place as the finest Irises now in cultivation and, with the exception of the new W. R. Dykes, which is quite unique, such varieties as Bruno, Duke of Bedford, Romola, Tenebrae, Gabriel, Pioneer and Valerie West are still superior for size, quality and fine colour combination. Mr. Murrell deprecates the sending of seedlings into commerce that are not absolutely distinct, and he illustrates his argument by three newly introduced yellow varieties, Gold Imperial, Chasseur and Amber, and states that it is inconceivable that all three are needed as garden plants, and it is unfair to the public that they should be offered without stating that so far as garden effect is concerned, they are very similar. The extensive work done by the late Mr. W. R. Dykes amongst Irises is shown by a list, so far as has been ascertained, of his writings on Irises other than those published in book form, and the great majority of these notes have been published in *The Gardeners' Chronicle.*

Appointments for the Ensuing Week.—TUESDAY, FEBRUARY 22: Royal Horticultural Society's Committees meet; Wimbledon Gardeners' Society's meeting. WEDNESDAY, FEBRUARY 23: Sheffield Chrysanthemum Society's meeting; Pangbourne and District Gardeners' Mutual Improvement Association's lecture. THURSDAY, FEBRUARY 24: Paisley Florists' Society's meeting. FRIDAY, FEBRUARY 25: Association of Economic Biologists' meeting. SATURDAY, FEBRUARY 26: Lancaster and District Horticultural Society's lecture.

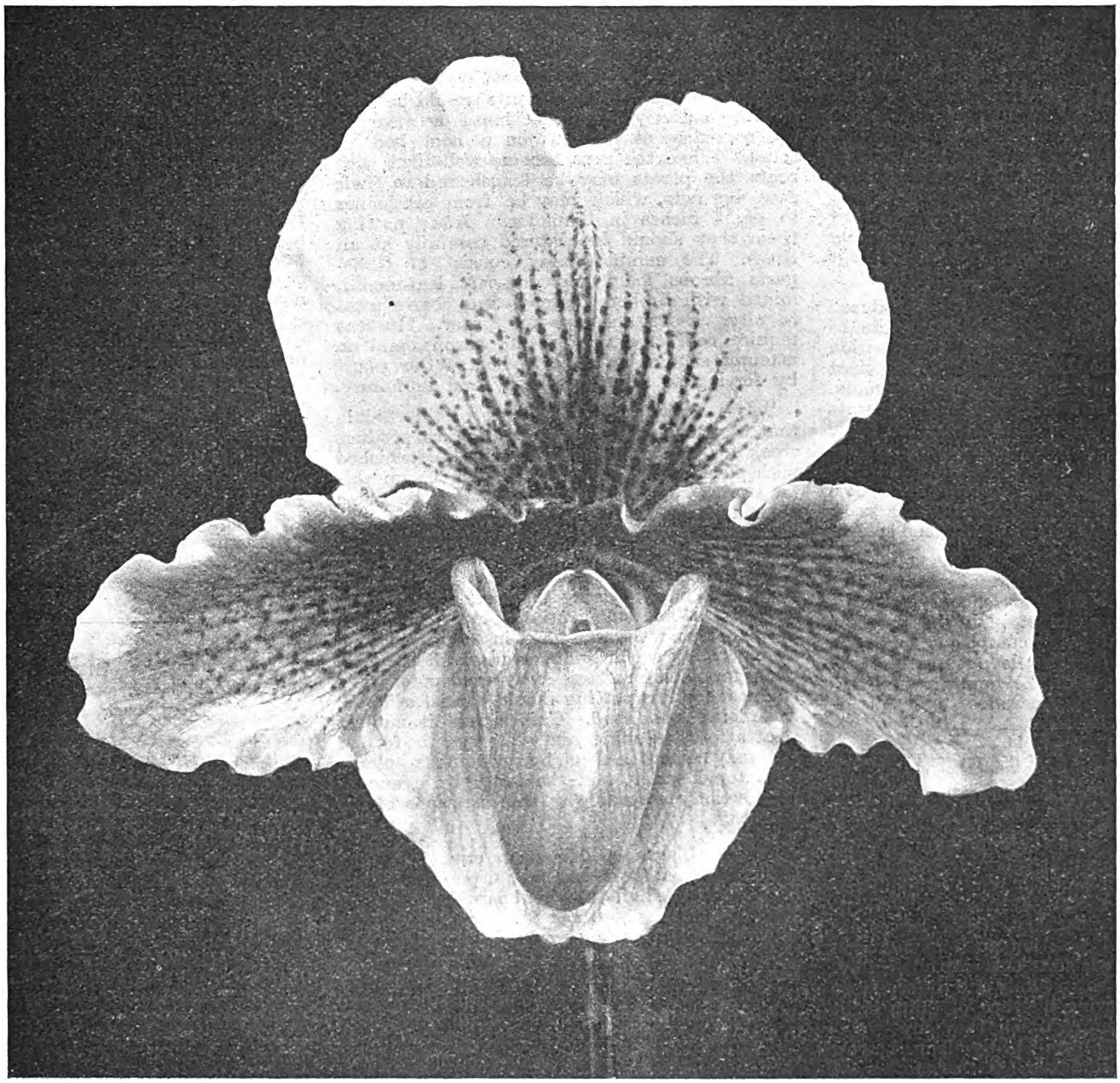


FIG. 61.—CYPRIPEDIUM MRS. ELEY VAR. W. G.

R.H.S. First-Class Certificate, February 8. Flower white, green, purple and brown. Shown by Mr. G. F. Moore, Charwar Bourton-on-the-Water. (see p. 120).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Kew Gardens.*—The last number of the "Quarterly Review" contains an interesting and amusing article respecting these beautiful gardens, and the rarities to be seen there. No more than justice is done to the admirable mode in which everything is arranged, and the liberal manner in which the public are admitted to the gardens, stoves, etc. What a contrast to the "good old times" within my own memory when a special application to be admitted to the *penetralia* was necessary; but there is nothing perfect under the sun, and every fountain has a bitter something, mixing with its sweet waters. Even the "Quarterly" finds fault with the rules, which prevent the harmless Cockney, who has had a hot journey by rail or steam-boat, adding to the pleasure of his summer's holiday, by sitting under the shade of some fine old tree, and discussing a paper of sandwiches, etc. Why is this refused? Does this rule prevail at the Jardin des Plantes, at the Luxumbourg, or at Schoenbrun? I believe not. And why should it? What harm would arise: so that the pleasure parties did not make a coffee-room of the museum, or the stoves, or greenhouses? I believe it is only to call attention to this rule to have it reconsidered. It would be well if you were to print the rules *in extenso*, and also to print the annual reports of the curator. There has been much reform as to admission to the Royal Parks and, I believe, persons carrying bundles and servants in livery are now no longer refused admission. There is another rule at Kew which is rather stringent, and in some degree offensive; on the way to the Gardens I had called at Knight and Perry's nursery, and one or two flowers were given to a member of my family who accompanied me, which she carried in her hand; the porter refused her admission, unless the flowers were left in his charge or thrown away; at first I did not see the reason for this singular order, but it was explained that the attendants would not be able to judge whether or not the flowers had been picked in the garden (*i.e.*, stolen). As it was the rule, the flowers were thrown away before entering, I observing that persons having stolen the flowers were not likely to leave the garden with them in their hands. Why, even at the Custom House, ladies' words are taken, as regards what they carry in their work-baskets. *Dodman.* (We take the liberty of expressing an opinion that the rules complained of in the not very decent or accurate article in the "Quarterly," are not only proper but necessary; and so we think is that about flowers). *Gard. Chron., February* 21, 1852.

Publications Received—*Vegetables for Home and Exhibition*, by E. Beckett; Simpkin, Marshall, Hamilton, Kent and Co., Ltd., 17, Ave Marie Lane, E.C. 4; price 15/-.—*The Gardeners' Year Book*, 1927, Williams and Norgate, Ltd., 14, Henrietta Street, W.C.2; price 3/6 net.—*Year Book of Pharmacy and Transactions of the British Pharmaceutical Conference*, 1926; The Pharmaceutical Press, 17, Bloomsbury Square, W.C.1.—*Plants of Glacier National Park*, by Paul C. Standley; Government Printing Office, Washington, D.C.; price 50 cents.—*My Farm in Miniature*, by G. Morland; Faber and Gwyer, Ltd., 24, Russell Square, W.C.1; price 10/6 net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Orchid Grower to LADY LEON, Bletchley Park, Bletchley, Bucks.

Miltonia.—This family of Orchids comprises plants which produce flowers at various periods of the year and they are deserving of extended culture. M. vexillaria, M. Bleuana, M. Venus and other hybrids are growing freely; having filled their receptacles with roots since being repotted last autumn, the plants will require more water than hitherto. They will increase in strength rapidly as the days lengthen. Thrips are very partial to the young, tender leaves of these Orchids, especially when the latter are grown in a warm, dry atmosphere; once they become established on the plants it is most difficult to eradicate them. Fumigating at intervals is the safest and surest means of destroying thrips, or dipping the plants at intervals in a weak solution of Quassia extract may be adopted. These plants often throw up their leaves closely folded together, especially the weaker growers, and unless the foliage is released it will be permanently injured.

Repotting.—Those plants which produced their flowers during the autumn, too late to be repotted at that season, may receive attention when their growths have attained sufficient size, and are about to develop new roots. They will succeed in a compost of equal parts Osmunda fibre, peat and A.1. fibre, with some Sphagnum-moss and leaves added. These plants delight in an even temperature the whole year round and should be grown in a cool house during the hottest part of the year, and in an intermediate house during the coldest months.

Treatment of Newly-potted Plants.—After repotting any plant watering should be done with extreme care, as most plants form roots quickly in a moderately dry compost. An excess of water not only decays the potting material but there is a danger of the new growths and the new roots decaying as well.

THE KITCHEN GARDEN.

By R. H. CROOKFORD, Gardener to THE RT. HON. LORD WAVERTREE, Horsley Hall, Gresford, N. Wales.

Spinach.—Sowings of the round or summer varieties of this vegetable should be made at intervals and throughout the season to suit the requirements of the establishment. Well-manured ground is necessary, if fine leaves are to be expected. A position such as between the rows of early Peas suits this crop admirably. The seeds should be sown thinly and the seedlings thinned freely allowing a space of quite eight inches between them. When they are growing freely, old soot dusted lightly along the row forms a useful stimulant. Other forms of Spinach, such as the Prickly or Winter Spinach as well as the Perpetual or Spinach Beet, will now be greatly benefited if a dressing of the same fertiliser, or a very light sprinkling of sulphate of ammonia is given between the rows, after which the frequent use of the Dutch hoe to keep the soil well-stirred will do much to promote active growth.

Spring Cabbage.—The above remarks as to dressing and hoeing Spinach applies equally to this crop. Should there be any gaps in the rows the blanks should now be filled with plants from the reserve bed.

Seakale.—Suitable strong crowns or clumps of this useful vegetable not yet covered should now have pots, boxes, or the like, placed over them, and covered with sufficient leaves or litter to exclude all light, total darkness being absolutely essential to obtain perfectly-bleached heads. Should pots, etc., not be available, good results may be obtained by covering the crowns with ashes or sand to the depth required.

Onions.—In gardens where the Onion maggot is troublesome it is wise to sow Onion seeds now in boxes, under glass. They should be sown thinly. The seedlings should be grown very sturdily and be well-hardened by about the end of April, at which time they may be planted in their permanent positions. When treated in this way, and the young plants kept lightly dusted with soot (thereby making them distasteful to the fly), the attack will be greatly minimised.

Brussel Sprouts and Cauliflowers.—For early supplies, seeds of these Brassicas should be sown now in boxes or frames. So soon as the seedlings show a pair of rough leaves, prick them out, either into other boxes or frames, and grow them sturdily until planting-out time arrives.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Humea elegans.—These plants should be kept growing actively in a cool house as near to the roof-glass as possible on a cool bed of ashes. When the pots become well-filled with roots the plants may be transferred to their flowering pots, which may be from six inches to eight inches in diameter. After potting them they should be watered carefully at all times. The compost may consist of three-parts fibrous loam and one-part leaf-mould, mixed with broken charcoal and coarse sand to allow a free passage for water. Humeas require cool treatment at all seasons, and no attempt should be made to hasten the plant by forcing, as this would only end in failure.

Salvia splendens.—Old plants of this Salvia that were cut back after flowering to produce stock for this season should now be furnished with plenty of strong, healthy growths suitable for use as cuttings. These may now be taken off and inserted in light, sandy soil, placing four or five cuttings around the side of a sixty-sized pot. They will root readily if placed in a propagating frame; failing this they may be stood in a box, covering the same with a sheet of glass. When sufficiently rooted they should be placed near the roof-glass in a house having a moderately warm temperature until they are ready for placing in large sixty-sized pots. The compost for this potting should consist of loam, leaf-mould and sand. This Salvia is subject to attacks of red spider and white fly; the former pest may be kept in check by syringing the plants with tepid water, and the latter by cyanogas used strictly according to the directions of the makers.

Ferns.—Plants of Adiantum cuneatum that have been used for decorative purposes and have been given a slight rest will now be ready to start into active growth again. For this purpose they will need to be grown in receptacles of various sizes ranging from small sixties to thirty-two's; therefore it becomes necessary to divide the plants by cutting them into portions to suit the various sized receptacles in which they are to be grown. The compost should consist of a mixture of good loam, peat, silver-sand, and broken charcoal. After potting the plants stand them in a house having a brisk temperature and plenty of atmospheric moisture.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet, Middlesex.

Gooseberries and Currants.—To maintain a stock of healthy, young plants in readiness to take the place of old bushes or to form new plantations, a quantity of cuttings should be prepared and rooted annually to meet the requirements. In the cases of Gooseberries, Red Currants and White Currants, I prefer a clear stem of nine to twelve inches from the ground-level to the lower branches, and to attain this the lower buds should be removed when preparing the cuttings. The latter should be planted firmly in a suitable position in rows twelve inches apart to enable a small hoe to be used when required to keep down weeds and make the surface friable.

New Plantations.—Select a good position for new beds of bush fruits. The land should be dug deeply and manured, especially if the soil is light and porous. Set out the plants at six feet apart and apply a shallow mulch later if required.

Pruning.—If the pruning of the fruiting bushes has been deferred the work should be completed forthwith. To obtain large fruits for dessert the roots should be top-dressed and mulched liberally with suitable manure. The heads of the bushes should also be well-thinned and measures taken to prevent birds damaging the buds. A few strands of black cotton strung over the bushes at different heights will do much to keep the birds away.

Nuts.—The pruning of Nut bushes may now be done, as the small, pink-coloured female blossoms are fast opening. The pruning of full-sized bushes at this date consists principally in thinning some of the twiggy growths where they are too numerous, cutting them back to a few buds and removing entirely very gross shoots. Endeavour to keep the main, cordon-like branches well-furnished from bottom to top with healthy, fruiting growths. Leave plenty of male catkins suitably placed to ensure fertilisation of the female flowers. All suckers should be grubbed up and strong growths around the main stems removed. Top-dress the roots with suitable feeding materials, if needed.

Vines.—Established vines growing on walls or fences should be pruned and put in order before the sap begins to move. After this date and especially if the wood is not well-matured, the cut surfaces should be dressed with Thompson's vine styptic to prevent bleeding. Dress the rods with a mixture of Gishurst compound and make sure that all the fastenings are perfect to hold the rods in position in stormy weather. Give the roots a liberal top-dressing of rich soil and manure where this can be done conveniently, but this will not be necessary in the case of vines that are growing very strongly.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to COLONEL SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Vine Eyes.—Eyes inserted in small pots or squares of turf last month should be rooted in a steady bottom-heat of 75° to 80°, and a close, humid atmosphere, but on no account should the soil be made wet before the roots reach the sides of the pots. When they have done this and a few leaves have been made the more forward eyes may be shifted into pots two sizes larger. The compost should be warm and on the dry side; it should be composed of good, turfy loam, a little lime rubble and bone-meal. After potting them return the young vines to steady bottom-heat until such time as they are ready for transferring to seven-inch pots, which are large enough for planting canes.

Late Grapes.—These are now grown to such perfection and kept so well after they are ripe as to considerably diminish the necessity for very early forcing. This practice results in a saving in fuel and the vines are not weakened by the hard forcing. The cultivator who moves with the times starts his early vines later and his late ones earlier, bringing their seasons of growth into a more genial time of the year, as perfection can only be obtained with some late varieties by making an early start. By this means the generally inferior Gros Colmar is altered in character and becomes eatable as well as saleable. Berries deficient in colour are generally inferior in flavour, and no Grape confirms the opinion that improved flavour accompanies good colour, better than this variety. The variety Lady Downes also requires a long season of growth to produce bunches of the best quality and develop the rich flavour it is noted for. All late Grapes are improved in quality by starting the vines at this date, with the possible exception of such varieties as Alicante, Gros Maroc and Alnwick Seedling. The advantages of starting the vines early are apparent in dull summers, and the best time to use fire-heat is at the commencement of the season, when little suffices to start the vines into growth; no harm will follow a hot summer, as artificial warmth may then almost be dispensed with. Attend to the cleaning and top-dressing of the borders, if not already done, and water the borders copiously, as vines that are dry at the roots generally fail to break into growth satisfactorily.

THE FLOWER GARDEN.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Phillyreas.—These shrubs are such attractive and useful evergreens it is surprising that they are not more generally used in gardens. They are quite hardy in the south, although in the north they may require sheltered positions. In the south and west P. angustifolia and P. latifolia make small trees. They are of such neat and close growth that it is surprising they have not been used for ornamental hedges. There are several varieties of both P. latifolia and P. angustifolia. P. decora (syn. Vilmoriniana) has much larger leaves than the others, and is more generally seen in gardens, as it is considered to be the hardiest species.

Roses.—Firm planting is essential in the case of Roses, and where the beds have not been prepared in advance for late planting it is a good plan to tread the bottom spit; that is, assuming the soil has been dug at least two spits deep. This method of treading the bottom spit will give, in newly-worked ground, a much firmer planting-medium.

Montbretias.—In most soils Montbretias increase so fast that they require to be lifted and divided every few years, and this is best done when they are just starting into fresh growth. The time for planting will, of course, vary in different parts of the country, but any time during February or the beginning of March may be regarded as suitable. For ordinary purposes it is sufficient to divide the clumps into pieces with from six to twelve young growths. If, however, the best results are to be obtained, a somewhat different procedure must be adopted, and, is in fact, the method by which all the new and choice varieties should be increased. For this purpose the plants should have been lifted, placed in boxes, and wihtered in cold frames; treating newly-purchased, dry corms in the same way. During February and March, when they have made about four inches of growth, the rooted stolons should be detached and placed singly in sixty-sized pots. They should then be grown on in cold frames, hardening them off in due course for planting out, about six inches apart, in well-prepared beds or borders, about the beginning of May. By this method the old corms are not used for planting, only the young stolons, and very fine results are obtained. Where large quantities are required, it answers almost as well if the stolons are planted about three inches apart in deep seed-boxes. Treated in this way, Montbretias are excellent subjects for summer bedding.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Bedding Pelargoniums. — Autumn - rooted plants of bedding Pelargoniums, known popularly as Geraniums, should now be placed singly in three-inch pots and grown on in a moderate temperature; old plants that have been wintered safely will provide a plentiful supply of cuttings, which should be inserted this month in order to make up any deficiency or to provide dwarfer plants at bedding-out time. Three or more cuttings placed around the edge of a four-inch pot filled with a light, sandy compost will very soon form roots in a warm propagating house, when they should be potted singly before removing them to cooler quarters. For some obscure reason, that has never been satisfactorily explained, cuttings of Pelargoniums inserted at this season are not so liable to damp off as those rooted in autumn, and the recommendation usually given of laying these cuttings out to dry for a day or two, a practice usually adopted with autumn cuttings, is unnecessary; they may be inserted forthwith and watered in, when the majority will root in a very short time.

Lime-Sulphur Spraying.—The present is a most suitable time for spraying fruit trees in order to control fungous diseases, and lime-sulphur is admirably adapted for the purpose. Where brown rot, scab and canker are prevalent, the spraying should be performed carefully at the winter strength recommended by the makers, and if a second spraying is necessary, this may be done in a fortnight's time, and the specific diluted. The spray should not be used at the winter strength when the buds are active, but by diluting the lime-sulphur to summer strength, spraying may be done with safety, even when the trees are in full foliage. The disfiguring blotch or disease which attacks Peach trees growing on outside walls may be reduced if not eradicated altogether, by spraying them twice about this season each year, before the buds have started, and the more general use of this spray would be a great benefit to all fruit growers.

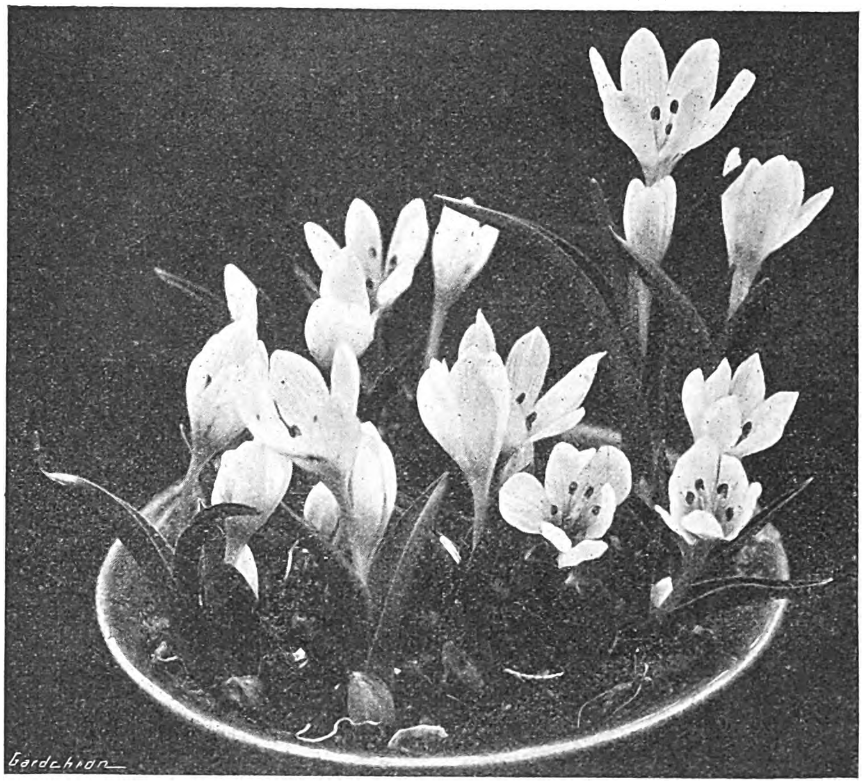


FIG. 62.—COLCHICUM CROATICUM.

R.H.S. Award of Merit, February 8. Flowers white. Shown by Mrs. Dykes, Sutton Green, Woking. (see p. 120).

Re-potting Stove Plants.—The various plants in the stove house should be given attention, repotting all plants which require it, and discarding those which, by reason of age, are no longer attractive. Cuttings of Codiaeums, Dracaenas, etc., should be inserted singly in pots and plunged in a brisk bottom-heat, always making sure that adequate supplies of moisture are supplied. Palms, such as Kentias, do not need repotting so often as many other plants, if regularly supplied with liquid manure, but when the pots are no longer able to accommodate the roots they should be shifted into a larger sized receptacle. A mixture of good fibrous turf, peat, leaf-soil and sand forms a suitable compost for most of the occupants of the stove, and where Sphagnum-moss is available this may be used with great advantage to cover the crocks, instead of rough leaves or turf, which are usually employed.

BULB GARDEN.

TWO GOOD DAFFODILS FOR FORCING.

THE early-flowering qualities of King Alfred and Sir Francis Drake Daffodils are by no means common knowledge, but the fact is that they are two of the very best sorts for gentle forcing. A trial has proved that of the two Sir Francis Drake is slightly the earlier.

Bulbs of both varieties were potted on August 12, in turfy, yellow loam, placed out-of-doors and covered with four inches of ashes. Here they remained until the first week in November, when they were taken out of the ashes and placed in cold frames. On December 8 they were taken into a house having a temperature of 50°, which at the end of the month was raised to 55° to 58°. The foliage developed very strongly, the stems were robust, and on January 16 the first flowers of Sir F. Drake were fully expanded, while those of King Alfred were not developed until January 20. Both varieties were moved into a cool house, and a most brilliant show has resulted. The colour in both cases was perfect, the deep rich yellow of King Alfred being as good as it is when the plants are grown outside.

No manure, either in the soil, or water, was given these plants, which were grown in seven-inch pots. *J. S. D.*

CROCUS LAEVIGATUS.

CROCUS laevigatus has been flowering in the open since well before Christmas, and even during the second week in January it was still making a pretty show, and looked like continuing in bloom for some time.

It is a variable plant in nature, the flowers ranging from white to pale lilac and feathered with markings of a crimson-purple tint.

The flower grows about two-and-a-half inches high and is three-quarters-of-an-inch in diameter. It is of good substance and is capable of withstanding bad weather better than most members of the genus.

Crocus laevigatus is a delightful subject for a sheltered corner of the rockery. *T. H. Everett.*

GALTONIA CANDICANS.

Among the many good garden plants which have been introduced from South Africa, few, if any, are more generally useful than this bulbous subject. The flowering period extends from June to August, and the flower-spike, which attains a height of three to four feet, bears from twenty to thirty pure white, pendulous, bell-shaped flowers, each about one-and-a-half inch long, and delightfully fragrant.

Galtonia candicans is seen at its best either when planted in a large, isolated group, or when associated with some imposing foliage of a different character, such as that of Yuccas. A clipped Yew hedge also makes an excellent background for a planting of this subject.

A rather light but rich soil gives the best results, and the bulbs may be planted any time from November to March. A layer of sand should be placed under the bulbs, which should be set eight inches apart at a depth of four inches.

Once planted, they need not be disturbed for many years as the best results are obtained from established clumps. A mulch of light material applied in the autumn will protect the plants from severe frost.

So soon as the flower-spikes have faded they should be cut away to allow all the energies of the plant to be concentrated on strengthening the bulb to provide for a future display. Offsets afford a ready means of propagation. *T. H. Everett.*

ALPINE GARDEN.

CERASTIUM ALPINUM LANATUM.

Cerastium tomentosum, or "Snow-in-Summer," is abundant in many gardens, but few know Cerastium alpinum lanatum, a distinct form of a native plant not commonly seen, unless in its native habitats. This alpine Cerastium is very "fluffy," with silvery down, but the form lanatum possesses this feature in such a marked degree that it has been likened by Mr. Clarence Elliott to chinchilla fur, and he calls this form the "Chinchilla Plant."

The plant grows just a little above the soil and should be exposed fully to the sun. It does best in a moraine containing lime or in very light, dry, stony, sandy soil in the rock garden. Winter wet is its greatest enemy, and in wet districts a sheet of glass should be arranged as a protection overhead from October until March. *S. Arnott.*

HARDY FLOWER BORDER.

CAMPANULA GLOMERATA.

Campanula glomerata is one of the best known of the cluster-headed Bellflowers. It is a native of England and perfectly hardy, presenting few difficulties as a border plant. It grows about eighteen inches high, and has fine, clustered heads of blue flowers.

A delightful variety is C. g. acaulis, which is attractive in the rock garden, as well as in the front of the hardy flower border. C. g. alba is a variety with good white flowers and appreciated by many. C. g. dahurica is one of our best hardy flowers, and is universally appreciated. It has very large heads composed of deep purple flowers. There is also a white variety of C. g. dahurica which appeals to many, although it has not the grand effect of C. dahurica itself. Another variety of C. glomerata bears the title of Mauve Queen. It has flowers of a delicate mauve or pale blue. A double variety, called C. glomerata plena, is also in cultivation. It has blue flowers, and admirers of double varieties of border flowers prize it.

All these Campanulas flower in June or July and last for a long time in bloom. They are increased by division, and grow in any good garden soil. The type may be raised from seeds. *S. Arnott.*

FLORISTS' FLOWERS.

THE DOUBLE WALLFLOWER.

The double Wallflower has been cultivated for nearly four hundred years in this country, and for a very long period it enjoyed considerable popularity as a florists' flower; the varieties long in cultivation were the blood-red, black, golden yellow and pale yellow, and in old books it is not uncommon to find mention of one with nearly green flowers.

This fine old flower was popular in the north of England, and it was not unusual for plants exhibited to bear spikes from eighteen to twenty-four inches long.

As the plants pass out of flower they produce an abundance of shoots, and from such, removed in their entirety, particularly good varieties were perpetuated; the procedure followed by the old florists was to select shoots from two to three inches long, which had become a little firm at the base and to insert them in a frame or under hand-glasses, a firm, loamy soil being favoured for these cuttings.

When rooted, the cuttings were either planted in their permanent flowering quarters or placed singly in small pots and wintered in a cold house, according, I presume, to the district or situation.

An annual increase and renewal by propagation was recommended, except in the case of very fine varieties, and then, immediately after flowering, the plants were cut back—"they speedily push and become handsome plants."

The Wallflower delights in a good, mellow loam, vegetable soil and well-rotted cow-dung, the double forms responding freely to generous treatment; they are excellent as pot plants, and it is well to grow them in the open garden until late autumn, then pot them and grow on in a cool house or pit.

"In floral language, the Wallflower stands as the emblem of fidelity in misfortune, because it attaches itself to the desolate, and enlivens the ruins which time and neglect would otherwise have rendered terrible. It hides the savage strokes of feudal times on the castle walls, fills the space of the wanted stone in the mouldering church, and wreathes a garland on the crumbling monument no longer noticed by friendly relations." (*Horticultural Cabinet*, 1848). These plants were at one time termed Wallflower Stocks; in France they were extremely popular, being termed the Gold Stick, the Golden Branch and the Golden Garland.

Seeds of a good strain of present-day varieties will yield a large percentage of double flowers, and dwarf or tall forms may be obtained. Although not comparable with the single flowered Wallflowers for bedding purposes, or for general garden display, they are very fine as pot plants, and individually possess much beauty, perfection of form and delicious fragrance. *Ralph E. Arnold.*

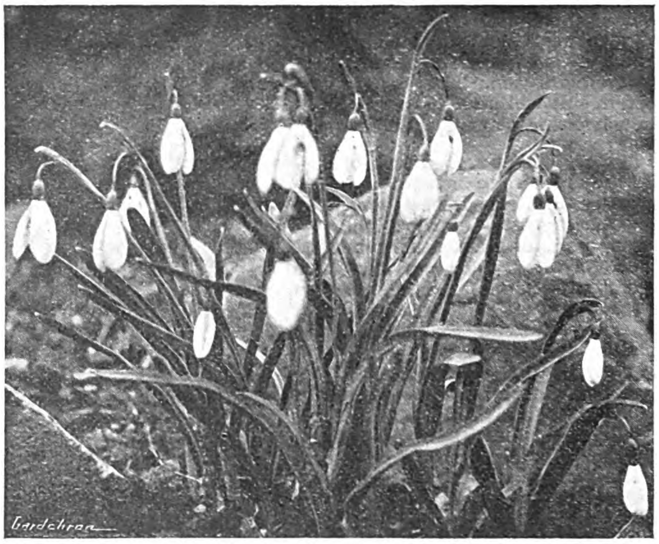


FIG. 63.—GALANTHUS MAGNET IN THE GLASNEVIN BOTANIC GARDENS (see p. 129).

FLOWER GARDEN.

VERBENA VENOSA.

Mr. W. Rowle's praise of Verbena venosa (p. 96) is another testimony to the pleasure this old-fashioned favourite gives in gardens. Here, we grow it in large clumps in the herbaceous borders, and it is most effective.

The treatment consists in keeping it within bounds, lifting the plants about every third or fourth season, and replenishing the site with leaf-mould or manure. The plant is sufficiently hardy to withstand the winter here—but my remarks are prompted by the remembrance that it used to live through the winter at Hardwick, being planted in four of the large beds, just away from the fountain in the large flower garden. In May, when the usual bedding-out was done, the spaces between the Verbena were planted with Pelargonium Manglesi, a silver bicolor; with much of the growth white or a creamy-white, and having trusses of small, pink flowers, it made a very effective combination with the Verbena. *R. W. Norman, Trelissick Gardens, Feock, near Truro.*

TREES AND SHRUBS.

BUDDLEIA GLOBOSA.

This fine old shrub does not seem to be planted quite so freely these days as in the past, varieties of B. variabilis and other kinds having perhaps diverted our attention from the once more familiar species. But B. globosa is still without a rival in the genus, for it is unique in the colour and arrangement of its flowers and quite distinct from any other species. Apart from that, this Chilean Buddleia is a remarkably handsome subject and a shrub of such good qualities few can afford to ignore.

Here, on the west coast, the pale green, lance-shaped leaves are retained on the plant throughout the winter, and very attractive they are with their undersides coated with a creamy-brown felt, which is also found on the younger wood.

The fragrant flowers, forming balls of bright orange-yellow, nearly an inch in diameter, are borne in splendid terminal panicles in early summer, the shrub continuing in bloom for several weeks.

B. globosa is said to be hardy at Kew and here it will withstand 20° of frost without injury. As the blooms are borne on the wood made the previous year, any pruning that may be needed should be done so soon as the flowering season is over.

JASMINUM REVOLUTUM.

For growing as a bush in the open, I find this species the most satisfactory of the Jasmines. It attains a height of some four feet to six feet, making a lax, open-habited shrub. Here it is evergreen; the dark green, alternate leaves are composed of from three to five or more leaflets.

The flowers appear in bold clusters at the tips of the branches in the later spring and summer, and their rich, bright yellow has a most effective setting in the sombre foliage. In this district Jasminum revolutum is absolutely hardy, even the foliage being uninjured by 15° to 20° of frost.

It is an easy, vigorous shrub, quite capable of flourishing for years with the scantiest of attention and, if need be, in the poorest of soil.

J. humile and J. triumphans of some lists appear to be identical with, or closely allied to the above. *A. T. J., Conway, N. Wales.*

RHODODENDRON PRAECOX.

Early in the year, while most of the hardy Rhododendrons are still dormant, this hybrid unfolds its exquisitely clear, rose-tinted, bell-like blooms. Looking across the slopes on a January day to a fifty yards long hedge of Rhododendron praecox in full bloom, one cannot but think that this must surely be the brightest and most profusely-flowered winter-blooming shrub.

The plants in the long row are smothered with flowers, each of the innumerable twigs terminating with a cluster of delicate blooms.

Millais, in *Rhododendrons*, remarks: "The flowers of R. praecox are resistant to frost, and I have seen them endure 8° without injury." Bean, in *Trees in Shrubs*, on the contrary, states "flowers almost invariably cut off by frost."

R. praecox is a garden hybrid raised by an Ormskirk grower about 1860 from R. ciliatum × R. dauricum. The dark green leaves are sparsely covered with short hairs.

This precocious subject, apart from its value for garden decoration, is one of the least exacting of forcing shrubs. Plants lifted during a mild spell in early winter and potted into receptacles just large enough to hold the ball of fibrous roots, will respond to gentle forcing and flower in mid-winter. As the flowers fade they should be removed to give the young shoots every encouragement to grow freely. *F.*

NOTES FROM GLASNEVIN.

In spite of severe frost and the fiercest gale experienced for many years, the end of January and early February saw many plants in flower, and during the second week of the latter month signs of great activity were observed among early flowering species.

Viburnum grandiflorum (V. nervosum) is striking, the stark, bare shoots bearing at nearly every node a cluster of deflexed pink flowers, which are also sweetly-scented. The habit of the plant is not particularly pleasing, especially in winter; two main shoots are seven feet high (Fig. 64), and but sparsely branched, except at the base where the laterals are beginning to develop.

Old favourites like Chimonanthus fragrans and Lonicera Standishii are flowering well, the latter, indeed, profusely. Both are sweetly-scented and excellent for cutting.

Daphne hybrida (Dauphinii) should be grown by all who love winter-flowering shrubs. The flowers are produced in clusters after the manner of most Daphnes, and though somewhat hidden by the leaves, the plant being evergreen, are nevertheless not inconspicuous, being of fair size, reddish-violet, and sweetly-scented. Daphne Blagayana, with corymbs of creamy-white flowers terminating the shoots, is just opening and never fails to arouse interest. Difficulty is sometimes experienced in establishing this species, but here it seems to do equally well in sun or shade, asking only for good loam and to have the shoots weighted down with stones, leaving only the points free. Nor does lime appear to matter, for although our staple soil is calcareous, the loam brought in is not, and this is used for the annual top-dressing.

Rhododendron dauricum and R. mucronulatum flowered in great profusion and were in full beauty when the frost came. The latter withstood freezing much better than R. dauricum and it took three nights with 10°, 10° and 13°, respectively, of frost, to destroy the flowers. Now we have R. praecox just opening and R. parvifolium, R. moupinense and R. Nobleanum in bloom.

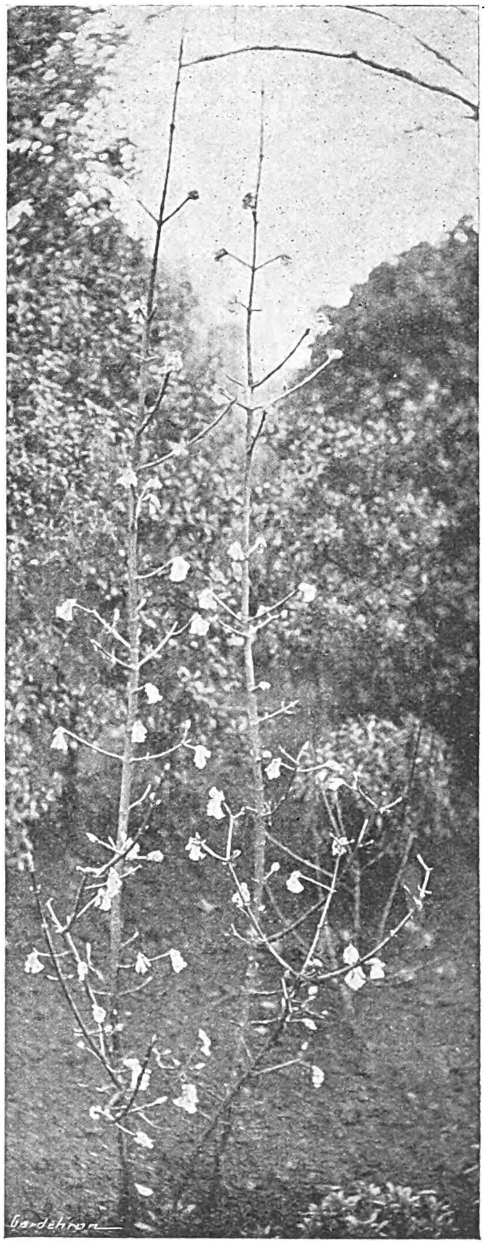


FIG. 64.—VIBURNUM GRANDIFLORUM IN THE GLASNEVIN BOTANIC GARDENS.

Although Parrotia persica, one of the Hamamelidae, grows well at Glasnevin, the species of Hamamelis have not yet grown satisfactorily. The Parrotia has produced its clusters of red stamens profusely this year, but H. japonica rubra and H. Zuccariniana are the only members of that genus to make any show.

Sarcococca Hookeriana digyna is one of the best of a genus that has become fairly well-known since the advent of certain Chinese species. The reddish-brown shoots, bearing leaves with the same colour carried up to the midrib, are now bearing small clusters of flowers with pink-tinted bracts at the base of the stamens. The newer S. humilis has been in flower for several weeks, and always betrays its presence by the sweet Hawthorn-like scent of the flowers; in this species the shoots and leaves are uniformly green. The first of the Ribes to flower is R. laurifolium, the male plant of which is now bearing many racemes of greenish-white flowers.

Iris unguicularis, still in full bloom, has been flowering well since the beginning of the year. It is represented here by some half-dozen forms; of these, alba, Imperatrice Elisabettae, marginata and speciosa are in flower. These are grown close under the walls of the plant houses, fully exposed to the sun, and with the roots confined. Also in a narrow border, the wild form of Narcissus Tazetta has flourished for years and rarely fails to appear soon after Christmas, flowering early in the New Year.

Lithospermum rosmarinifolium seems to enjoy exposure and a confined root-run; it is very attractive now with a fine crop of beautiful blue flowers.

The Hellebores are best known perhaps by the beautiful Christmas Rose, H. niger, of which there are many forms, but some other species are not without interest. H. corsicus, with long-stalked, deeply-lobed leaves, the lobes strongly-toothed, and corymbs of pallid-green flowers, is excellent for semi-wild parts of the garden. The deep green H. viridis, of lowlier growth, is also distinct and interesting; of this there are several varieties. H. atrovirens, taller and with larger flowers, green, tinged with purple, is probably a hybrid of viridis, and one of the reddish-purple-flowered species. Polygala Chamaebuxus purpurea, in peaty soil and facing north, is flowering freely; this is a cheerful little evergreen, admirable for the rock garden in association with dwarf Rhododendrons.

Anemone blanda scythinica is now in flower and is always admired for the deep blue colour on the outside of the petals, which are white within. The first of the Hepaticas, viz., A. Hepatica angulosa, has also opened its pale blue flowers.

Saxifragas are coming on apace, the earliest being the yellow-flowered Caucasian species, S. Desoulavyi, followed closely by a form of S. apiculata, known as Albertii. The only advantage the variety has is its earliness, the type in my opinion being superior in habit and flower. S. Burseriana tridentina and S. Bursiculata both have a few flowers open. A fine bit of colour is provided by a group of Cyclamen Coum growing at the base of Pinus Thunbergii on the edge of the rock garden. Nearby, in the rock garden proper, Iris Vartanii with bright, blue flowers, is nearly over, but I. persica Tauri is in full bloom.

Almost in the centre of the rock garden stands a Stone Pine with a small patch of grass in front, colonised by Cyclamen repandum. Just where the grass joins the rocks the collection of Snowdrops is grown. This is one of the most interesting collections in the garden, particularly at this season, and surprises many people who are not aware of the number of species and varieties in cultivation. It is a matter of opinion whether the common Snowdrop, Galanthus nivalis, is surpassed in beauty by any of the others, but some of the larger-flowered species are certainly very beautiful. Without giving detailed descriptions, the following are now in flower:—Galanthus Allenii, C. Arnott's Seedling (presented by the late Mr. H. J. Elwes), G. cilicicus, G. caucasicus, G. Elwesii, G. Elwesii unguiculatus, G. Elwesii × plicatus (also from Mr. Elwes), G. Fosteri, G. Ikariae (flowers just showing colour), G. latifolius and G. latifolius Wisley var., G. maximus, G. Magnet (Fig. 63), G. plicatus and G. plicatus Newry Giant, G. robustus and G. Olgae. Several Crocuses are in bloom including C. chrysanthus, C. Fleischeri, C. laevigatus and C. Sieberi, and every day that passes will bring others. *J. W. Besant.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

MR. F. KINGDON WARD'S NINTH EXPEDITION IN ASIA*

VI.—An Interlude.

ARRIVED at the mouth of the Seinghku valley, I felt that we really were getting on; but so, too, was the season, and I was impatient to thrust ahead until I came into direct contact with the flowers I sought. The difficulties of the position were beginning slowly to dawn on me with every march from Fort Hertz, and I spent a restless week-end deciding whether to continue up the main valley (the Adung) or to branch off up the Seinghku; however, being stuck here for four days before anything at all happened, I had plenty of time to weigh the pros. and cons. Had the season been less advanced, I would have had no hesitation in continuing up the main valley, as originally intended; but the disastrous famine amongst the Mings and Tarons, combined with the lateness of the season, put a different complexion on the problem. The difficulty was, of course, two-fold, the fundamental one of food and transport. There is no need to go over the whole ground; it will be enough to say that, broadly speaking, from this point on neither existed. Since leaving the safe anchorage of Fort Hertz, I had been wandering about the shifting sands which support, and anon engulf, human life in the jungle, anxious indeed to go ashore on to an uninhabited island which rose above the surge of the forest, but unable to do so unless I could establish a life line, however slender, between it and the mainland I had left behind. Under the conditions, the shorter the line the better, so I immediately turned my attention to the Seinghku.

This valley is about fifty miles long, and at its head is the Diphuk La, 14,300 feet, a pass which leads directly to the Lohit river, in eastern Tibet, thus crossing the main Irrawaddy-Brahmaputra divide. Peaks of 17,000 to 18,000 feet block all exit from the valley except at this one weak link in the chain, and though none of these are covered with perpetual snow, numerous snow beds testify to the existence of glaciers at no very remote date. A little further to the north are several snow-peaks upwards of 19,000 feet high, so that could I establish a camp well up the valley, I should have no difficulty in reaching my goal.

However the immediate obstacles were undoubtedly alarming; and when four days had passed without sight or news of a single coolie, I began seriously to consider the advisabliity of establishing my base camp at the Seinghku-Adung confluence. However, on reflection, I decided that a worse site, imprisoned in the jungle, at a feverishly low altitude, could hardly be devised; and that despite the time it would take to move up the valley, horse, foot and guns, it would still be better to be a little late, and make a dump at about 7,000 feet, rather than hold on to a position which was weak from every point of view. Besides, from the higher camp, even in the event of a complete collapse of the supply and transport arrangements, it would still be possible to make daily excursions, and with a handful of coolies I could establish and ration, a small mountain camp. I therefore decided to wait and see.

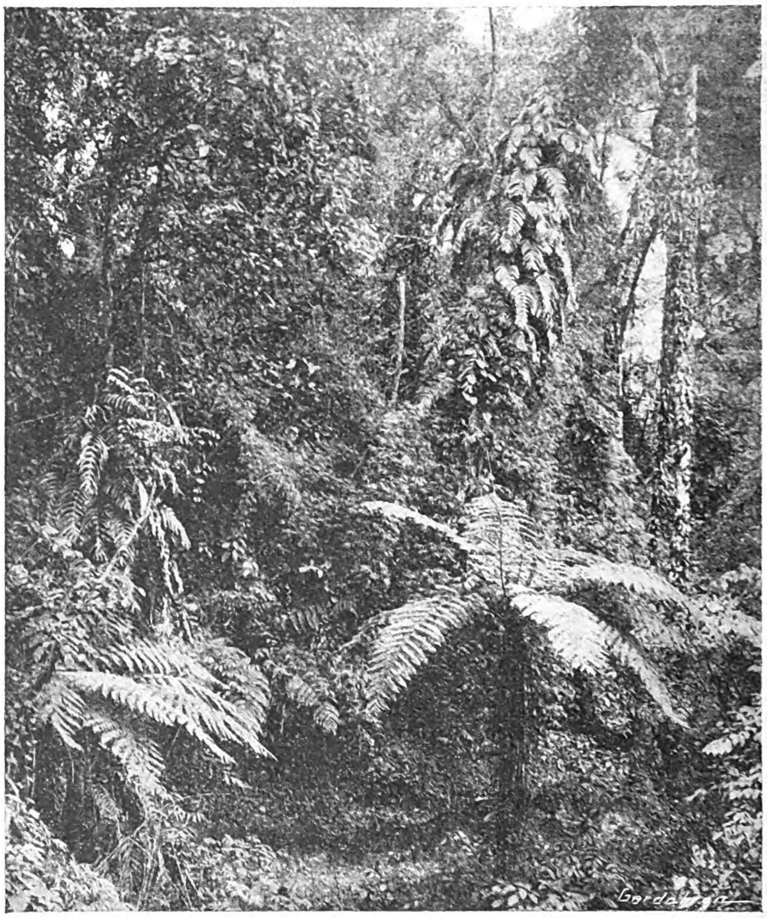


FIG. 65.—INDO-MALAYAN JUNGLE. TREE FERNS AND RHAPHIDOPHORA.

When I turned in, on the night of our arrival at the confluence, the wedge of sky to the south, framed between the cliffs of the Nam Tamai, was beautifully inlaid with stars, the red tail-light of Scorpio glowing in the very centre. A few hours later, I awoke, dreaming that someone had summoned the local fire brigade; a stream of water was playing on my head, and a syncopated dripping noise told of other streams directed elsewhere. I soon found that the hut was not really on fire, but that the roof was uncommonly well ventilated, and it was raining very heavily outside; after a brief spell of aquatic sports, directed to protecting my scattered belongings, I returned to bed. Next day temporary repairs were effected, the thick jungle which threatened to overwhelm the hut, cut back, and the starving coolies dismissed.

The four days, May 9-12, 1926, were devoted to local excursions, but I found myself badly cramped. There was no way of crossing the Adung, and although there was a bridge over the Seinghku, just above the confluence, it led nowhere except back to the path we had come by; I might add that this bridge was peculiarly nerve-splitting. There remained the right bank of the Adung, which I followed up for a mile, till checkmated by a big torrent, and the left bank of the Seinghku. Several attempts to scale the cliffs which formed the apex of the wedge between the two rivers proved completely abortive.

A short distance up the Adung, I came upon a delicious sight. At one point a large Alder growing on the edge of the jungle, leaned over till its broad crown shadowed the middle of the river, where it interlocked with the branches of another tree leaning from the opposite bank (Fig. 68). Immediately above and below this span arch, the river frothed amongst the rocks, which showed their teeth in a grim grin, but beneath the arch it was sleek and smooth, of a deep jade green. From either tree trunk spouted a fountain of Rhododendron blossom, the one pearl-white, the other blush, converting the arch into a natural pergola, and from time to time a pink or white corolla fluttered down like a wounded butterfly and swam away in the smooth stream. This was R. dendricola, the commonest species hereabouts, and, indeed, almost the only one. The flowers may be quite white, or definitely flushed pink; I am inclined to think that they change colour with age, opening pink and gradually fading to white; the buds are definitely pink. But it is certainly a variable plant.

Across the Adung, I noticed a large, white-flowered species which might have been R. Nuttallii, and near by was an epiphytic species with cream trumpet flowers, possibly R. Dalhousiae. It may be noted that in the lower jungle, where Rhododendrons occur at all,

---

[*] The previous articles on Mr. Kingdon Ward's Ninth Expedition in Asia were published in our issues of August 14, 28, October 9 and November 20, 1926, and January 1, 1927.

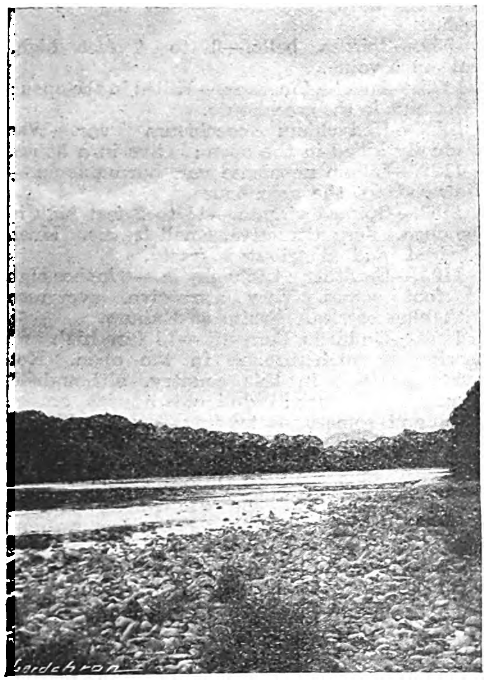


FIG. 66.—LOWLAND RIVER SCENE; HEADWATERS OF THE IRRAWADDY.

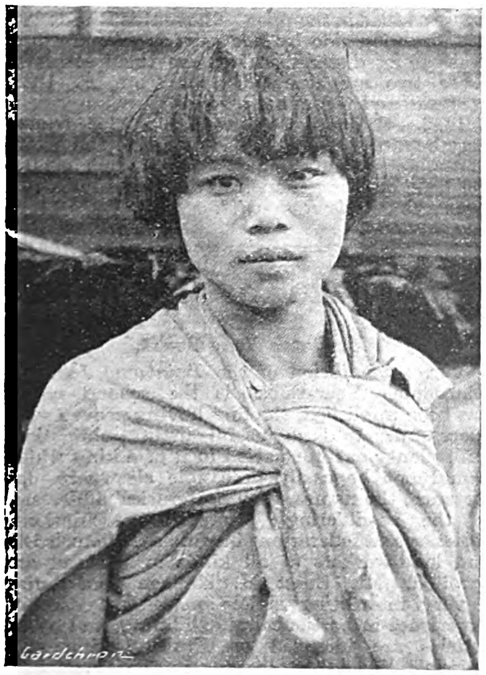


FIG. 67.—CAPT F. KINGDON WARD'S HEAD COOLIE. A MING OF THE NAM TAMAI.

they are always scattered, and merely an incident in the vegetation, being generally epiphytic. With the exception of R. indicum, the only series represented is 'Maddeni.' Even when we came to the next tier, with a much more varied representation, the species remain scattered, never forming solid colonies, nor even a considerable proportion of the forest. Their removal would little affect the appearance of the vegetation, though here we find species of the 'Irroratum,' and 'Stamineum' series—all moderate sized trees—besides epiphytes of the 'Maddeni' and 'Vaccinioides' type. It is not till we reach the temperate rain forest at 8,000 to 9,000 feet, with its big-leafed tree 'Grandes,' that we find Rhododendrons growing in a solid phalanx. Here they are no longer incidental, but dominant, and from this point upwards, their proportion is continually increasing, till finally, in the alpine region, they are often the *only* woody plants. Here and there, amongst the rocks, grew clumps of gaudy purple Impatiens, a genus represented in this country by a large assortment of species. But so dark and damp was the jungle that hardly anything but Ferns and Moss could grow there; it was only in the river bed, or by the path, or on the edge of cultivation that one saw flowers.

Ferns in particular were extraordinarily abundant and varied, of all sizes and shapes, from the delicate filmy Ferns to the giant birds' nest Ferns, with fronds three feet long, and the much bigger Tree Ferns. They grew on the trees and on the cliffs, on the ground, and even amongst the raw boulders in the river bed. Most of them are provided with distinct drip tips, or else are so finely subdivided that they shed water as hair does. Amongst numerous climbing plants I noticed species of Ficus, Smilax, Vitis, Schizandra and Akebia.

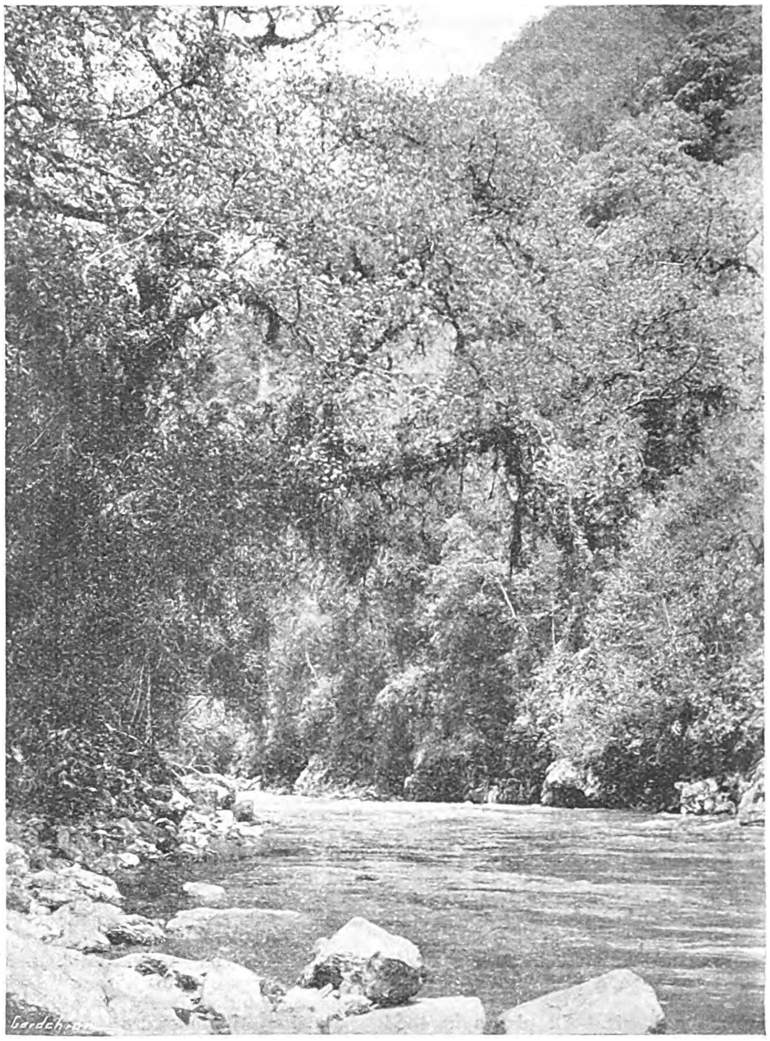


FIG. 68.—NATURAL PERGOLA OVER THE ADUNG RIVER; RHODODENDRON DENDRICOLA AS AN EPIPHYTE.

Birds were fairly plentiful, and several, including a plump grey-backed finch were constant visitors. Insect life abounded, and I caught a specimen of the ridiculous, long-necked Apoderus, besides many other interesting beetles. Less amusing were the blood-sucking insects which took an interest in us.

Cooped up at the bottom of the valley, we certainly saw life here. One hot afternoon we were treated to a severe earth tremor, and the hut rocked till I thought it must inevitably collapse over my head—as actually happened a few months later. We had fine days and drizzling days, the temperature on one occasion (May 9) rising to 80° in the shade, the lowest temperature recorded being 54° the same morning.

At last, on May 13, fifteen coolies from the Adung valley arrived, and I dispatched them up the Seinghku with stores and rations. They returned the following morning, and made a second trip, and on the 15th I was able to start myself with the remaining kit.

To begin with, the path kept close to the river, and presented no difficulty; but as the gradient increased, we had to climb cliffs, ascending and descending by improvised ladders, or hauling ourselves up by means of roots and cables. Finally we reached a tiny meadow, with a cultivated terrace above. One sensed a village here, and the place had a solemn name; actually there were three widely scattered huts, with an effective population of two, the remaining half-dozen being old women and small children.

Two temporary shelters had been built for me, in one of which I put my boxes, while the men lived in the other; I pitched a tent for myself. The coolies, who had done three days' work, had now to disperse, being without food; and once more I was called upon to endure a delay which, with each successive advance, became longer. Altogether, we spent six days (May 16-22) here, while my log hut was being built at the Tibetan village a few miles up the valley. The altitude of this camp was about 5,000 feet, and the mountains were everywhere clothed with thick forests. *F. Kingdon Ward.*

FARRER'S PLANTS AT EXBURY.

The recent publication of Mr. Euan Cox's book on *Farrer's Last Expedition* suggests to me that it might be interesting to your readers to have the following account of the plants from that expedition raised at Gunnersbury and now growing at Exbury and elsewhere.

This was the first time that I had anything to do with the raising of plants from Chinese seeds and, although the largest amount of seeds sent to any one individual came to me, I did not realise the difficulty of getting certain kinds to germinate and distributed seeds widely to various friends, many of whom were also unaware of the difficulties of raising Magnolias, for instance, from imported seeds. It must also be remembered that Exbury is a new garden and there is no place there for growing alpines or similar plants which cannot look after themselves, and for this reason the majority of those surviving are hard wood shrubs.

Since Farrer's last expedition many seeds have come to Exbury but I shall always feel a particular affection for the results of this one, which ended so disastrously, and whenever I look at the numerous plants raised from it—now growing so well and giving so much pleasure, I regret that Farrer did not survive to receive our thanks and see the results of his toil.

The numbers preceding the names are Farrer's.

801.—Rhododendron Mackenzianum.—Killed in the open at Exbury; 8 feet high in greenhouse. A plant 6 feet high, taken out to New Zealand by Mr. Edgar Stead, was bent over in the case and sprouted throughout its length during the voyage. It bloomed this spring (October), but "the two mauve, sweetly-scented flowers were slightly malformed."

811.—R. araiophyllum.—Killed in the open, 2 feet high in the greenhouse.

812.—R. tanastylum.—1-1½ foot in the open, 4 feet in the greenhouse. Like many of the 'Irroratums,' this plant seems to get hardier with age, and 18° of frost last year left it untouched, perhaps because it was sprinkled with snow.

813.—R. cerinum.—1 foot 10 inches high in the greenhouse. Attractive Buttercup - yellow flowers indoors; a plant in the open has not yet flowered.

814.—R. heptamerum.—1½ foot high in the open.

815.—R. aemulorum.—2 feet high in the open.

823.—Primula limnoica.—This Primula flourishes at Exbury and is one of the most attractive grown there; it is of a very attractive lavender-blue colour and of considerably more graceful shape than P. cashmeriana. It seems quite perennial and seeds freely and has been distributed to many friends who have admired it; fully open at the end of March or early April.

825.—Rhodoleia Championii.—One plant against a wall has survived some five winters and is 4 feet high. Other plants in the wood all succumbed in 1923 and 1924; 6-9 feet high in the greenhouse. At Lanarth there is a good plant growing in the open, 4 feet high by 4 feet wide.

839.—Gordonia axillaris.—All plants in the open were killed. Plant in the greenhouse 12 feet high. At Lanarth there is a good plant growing in the open, 5 feet high by 4 feet wide.

842.—Rhododendron bullatum.—Some half-a-dozen plants have survived in the open at Exbury, but are only 1 foot 3 inches high; 4 feet high in the greenhouse, where it blooms freely, producing large, sweetly-scented white flowers.

863.—R. arizelum.—2 feet 6 inches high in open.

867.—Jasminum pubigerum.—A bush, 6 feet 10 inches high in the open, with scentless, small, yellow flowers. Fruits freely at Exbury.

869.—Pieris sp.—3 feet high.

871 and 1,015.—Clematis Spooneri (?).—Some 8 feet high, against a wall, and then a tangled mass. Attractive flowers similar to, but larger and of more substance, also of a more ivory-white colour, than those of C. montana.

872.—Rhododendron sidereum.—1½ feet high in the open.

873.—aff. R. basilicum.—2 feet high in the open. Fine foliage.

874.—R. fulvum.—2 feet 9 inches in open.

875.—R. desquamatum.—6 feet 6 inches high in the open. Flowered in a greenhouse at Tittenhurst in April, 1925, where I saw some flowers considerably larger than those of Augustinii, of a good bluish-mauve. Most attractive.

876.—R. oulotrichum.—2 feet 3 inches high in the open.

877.—R. phoenicodum.—1 foot high in the open. Good scarlet flower. Rather difficult. Similar to R. euchaites.

878 and 1,065.—R. plebeium.—3 to 4 feet high in the open. Flowers quite attractive.

887.—R. glischrum.—This was originally sent over as R. habrotrichum, but all the plants raised from seed of this number at Exbury and elsewhere (including Edinburgh) are R. glischrum or very near it. Three feet high in the open.

888.—R. sperabile.—2 feet high in the open. Good scarlet, but poor truss and not so fine as R. haematodes at Exbury, either in colour or form.

891.—R. zaleucum.—2 to 3 feet high in the open.

903.—Manglietia insignis.—This plant seems perfectly happy at Exbury. One in the open is 6 feet 6 inches high, and another against a wall is 7 feet 6 inches high, while two plants in the greenhouse are each over 12 feet high.

909.—Morus indica.—13 feet high in the open.

918.—Rhododendron megacalyx.— 6 inches to 10 inches high in the open; in the greenhouse 2 to 3 feet high and flowers freely, having large, white, tubular, sweetly-scented flowers.

926.—R. aiolosalpinx.—2 feet high in the open At Tittenhurst this flowered in a greenhouse; cream with tinge of pink, pink spots.

937.—R. caloxanthum.—1½ foot high in the open. Has flowered in the greenhouse; flowers similar to those of R. campylocarpum.

952.—Philadelphus coronarius var. tomentosus.—8 feet high, and flowers freely.

953.—Rubus biflorus.—Good white-washed Bramble, 10 to 12 feet high.

959.—Rhododendron sino-grande.—3 feet high in the open. Leaves 1½ foot by 8 inches.

968.—Hypericum Hookerianum.—2 feet 6 inches high in the open.

975.—Rubus sp.—10 feet high in the open, but slightly tender and frequently gets cut back.

976.—Saxifraga purpurascens.—9 inches high. Attractive, purple-leaved plant with magenta crimson blossoms.

979.—Rhododendron, decorum form, near R. diaprepes.—4 feet 6 inches high in the open. Flowered in the open last year.

989.—Pyrus Vilmorini vel aff. (?).—This name was supplied by the Royal Botanic Garden, Edinburgh, but my specimen resembles P. Harroveana. 2 feet high.

1011.—Magnolia rostrata.—6 feet 7 inches high in the open. Three plants were raised and one died, the second went to Cornwall. The plant at Exbury has been out three winters and seems to like its situation. It is a bushy plant with magnificent leaves as large as those of M. macrophylla, but so far it has shown no sign of flowering.

1016.—Rodgersia aesculifolia.—Most attractive. Sprays of pink flowers 4 feet high. Has been distributed freely from Exbury.

1022. — Rhododendron facetum. — 2 feet 9 inches in the open, 5 feet high in the greenhouse. Some twenty plants of this are growing in the open at Exbury, and I cannot distinguish it from R. eriogynum, which is growing by it, from Forrest's seed. It has set flower buds this year in the greenhouse.

1024.—R. scyphocalyx.—1½ foot high in the open.

1030.—Berberis Wallichiana, D. C. var.—2 feet 6 inches high.

1034.—Ilex odorata var.—Gets killed to the ground in hard winters, is now 6 inches high again in the open. At Caerhays there is a nice plant, 8 feet 4 inches high.

1035.—Tripterygium Forrestii.—Some 3 to 4 feet high in the open; in the greenhouse 15 to 20 feet. Fruited last year.

1044. — Rhododendron crassum. — 6 feet 6 inches high in the greenhouse. At Lanarth there is a fine plant growing in the open, 5 feet by 5 feet, which flowered freely last year, producing particularly fine 'Maddenii' flowers. Neither in flower nor in foliage is this typical R. crassum; it is a finer form in every respect.

1045.—R. calostrotum.—1½ to 2 feet high in the open. What appears to be a natural hybrid between this and Trichocladum series has appeared amongst the plants raised from this batch of seed, some twenty to thirty plants growing much stronger, some 3 to 4 feet high, and with flowers of a pale straw colour.

1046.—R. myrtilloides.—1 foot high in the open.

1089.—Spiraea bella.—3 to 4 feet high. Not much value.

1096.—Luculia Pinceana.—Killed in the open; 4 feet high in the greenhouse.

1098.—Hedychium coccineum var.—Was gradually killed in the open; alive in a house.

1122.—Lilium nepalense var. burmanicum.—Flowered in the greenhouse.

1153.—Spiraea virgata.—1½ to 2 feet high in the open. Very attractive, small leaves. Much admired and distributed freely.

1191.—Gaultheria trichophylla.—6 inches high 1½ foot across. Very attractive, evergreen with blue berries. Fruits at Exbury.

1238.—Buddleia Forrestii.—13 feet high and nearly as much through in the open. Not worth growing in this country, although it flowers at Exbury; dull cream with orange eyes, and sometimes tending towards lilac.

1324.—Gaultheria laxiflora.—Sprays of leaves 5 feet long; the black fruits set freely at Exbury.

1325.—Cotoneaster aff. C. Franchetii.—12 feet high at Exbury. Attractive in fruit.

1399.—Berberis capillaris (?).—Fine autumn colouring; good fruit.

1407.—Juniper, "Coffin Tree."—6 feet 3 inches high; growing well.

1408.—Quercus sp.—Is frequently cut by frost, but continues to grow, nevertheless.

1415.—Embelia floribunda.—5 feet high in the greenhouse; 1½ feet high against a wall.

1420.—Vaccinium Delavayi.—1 foot in height by 1 foot through.

1428.—Araliad.—Three plants over 22 feet high at Exbury, some half-a-dozen others are smaller; has not yet flowered.

1433.—Viburnum (?).—2 feet 6 inches high.

1435.—Picea sp.—3 feet 2 inches high; growing well.

1442.—Prunus Persica.—12 feet by 12 feet through. Has flowered but not fruited yet at Exbury. Retains its leaves until the new year.

1444.—R. Kyawi (?).—6 feet high in the greenhouse; killed in the open. I have this Rhododendron growing side by side with R. prophantum, and cannot distinguish between them although these two are quite distinct from F. 1022, facetum and eriogynum group.

1446.—Callicarpa.—Attractive violet fruits; may be a new species. 8 feet high in the greenhouse, nearly as tall against a wall, but has not yet been out long enough to decide on its hardiness. *Lionel de Rothschild.*

NOTICES OF BOOKS.

A Dutch Year Book*.

The 1927 edition of the *Tuinbouw Jaarboek* (Gardening Year-Book) is the second which has been published, the first having proved very successful. It is a useful little publication, with plenty of information in it of a kind which would not be easily accessible elsewhere—for instance, the names, with Secretaries' addresses, of the bewilderingly numerous associations, societies and federations in which horticulturists and land-workers of all kinds in Holland are enrolled. Mr. Ernst H. Krelage contributes a very interesting article on thirty years of experience in horticultural exhibiting, and other articles are included on Fruit Sorting and Packing, Vegetable Growing in the Maastricht District, Tomato Cultivation, etc.

A list of German import duties on fruits and vegetables will no doubt be of great value to Dutch growers, and the list here given appears to be exhaustive and clearly set out. The section on Dutch horticultural education is a revelation of the excellent work which is being done in this way, and which might put to shame many larger and wealthier countries.

---

* *Tuinbouw Jaarboek*, 1927, Assen, Holland, N.V. Uitgevers-Mij. v/h Firma W. v. Gorcum. Price (not stated).

ECONOMIC PLANTS OF THE BAY ISLANDS (HONDURAS).

(*Continued from p.* 118).

VEGETABLES.

Cassava.

The root of the Cassava plant, or Yuca (Manihot sp.), family Euphorbiaceae, is one of the most important articles of food in the Bay Islands. This plant reaches a height of five to eight feet, and it has a woody, knotty stem of greenish or red colour, surmounted by palmate leaves consisting of five or seven leaflets.

The Cassava is a native of tropical America and its home is said to be in Brazil, but it was taken from the latter country to other parts of the tropics, and it is now extensively cultivated in Africa. This plant prefers sandy soil, rich in humus, and grows from sea-level to an altitude of 4,000 feet (say, 1,200m.); it may even prosper in higher regions but in them its roots are of inferior quality. This Cassava is propagated by cutting the stem in lengths of about half-a-foot each and sticking these in the ground about five feet apart. It takes nearly a year from the time of planting to complete maturity. By removing the young flowers, the roots are encouraged to grow to a larger size and become richer in starch. When taken from the ground the tubers soon deteriorate, but in the soil they will keep well for a year or even more after maturity.

There are many varieties of Cassava producing roots of white, yellow or reddish colour, and these again differ in size, shape and taste. Common distinction is made only between Sweet and Bitter Cassava. The Sweet Cassava (M. palmata Aipi) is generally eaten as a vegetable, but occasionally it is grated and baked in thin, small, circular loaves or cakes, called locally Cassava bread or bammies.

The Bitter Cassava (M. utilissima) is the staple food of the Caribs, but is not cultivated at all by the other inhabitants of the Bay Islands. It yields more tubers than Sweet Cassava, and these are made into bread and starch, after squeezing out the milky juice which contains hydrocyanic or prussic acid. The Caribs make use of this juice in cookery, expelling its poisonous qualities by heat.

Yam.

Another very important foodstuff of the Bay Islands is the Yam, Name or Yame, the starchy tuberous root of various species of Dioscorea. This plant is said to be of African origin, introduced into the New World by negro slaves. Nevertheless, wild species of Yams are found in the neighbouring mainland of Central America, and also in other parts of the lowlands of tropical America. In the Bay Islands they replace the Potato to some extent, but the flesh even of the better varieties is coarser and less palatable. The Ladinos do not cultivate this plant.

The tubers are produced in the ground at the end of a long, slender, climbing vine and reach a weight up to thirty pounds (13.6 kg.) and more. The planting of the Yam is carried out in the following manner. The tuber is cut off close to the top so that a small part is left attached to the vine. This cut-off part is then put back into the ground, covered with soil, and after three to four months a new Yam, known as the head (cabeza, cabo) is formed. The latter is never eaten, but it is cut up in several pieces, taking care that each one of these divisions is provided with an eye. These parts are then planted in the ground and from them new plants will grow.

There are many varieties of Yams, of which the following are the more common:

The White Yam (D. alata), which is the most common variety of all; this has a square stem and large, heart-shaped, opposite leaves.

The Negro Yam (D. alata var. or D. sativa), is also white, but it has a round stem with very small prickles on the lower part, and it has heart-shaped, alternate leaves. The tuber is somewhat brittle and it does not keep so long as does the White Yam after being dug up.

The Yellow Yam, also called Guinea, Afoo, and Afou Yam (D. aculeata) has also a round stem with small prickles, and its leaves may be either alternate or opposite. Its yellow tubers are highly esteemed. These three varieties have very large tubers and heart-shaped leaves.

The Indian Yam, known also locally by the Jamaican name of Yampee, Spanish Yampa (D. trifida), has its leaf divided into three leaflets and bears much smaller, round tubers, of very good quality. Two varieties of this are found in the Bay Islands, one bearing white tubers and the other purple; the latter is by far the more common.

Eddo and Sweet Potato.

Another important vegetable is furnished by the tubers of several plants known locally by the Jamaican name of Coco (Xanthosoma sp. and Colocasia sp.), and in other parts of the British West Indies as Eddo and Tania. This is the Elephant's Ear of the North Americans. There are many local names in Spanish America, and in Honduras they are called Yautia and Malanga. The plants belong to the genera Xanthosoma and Colocasia, which are of similar appearance and habit, and few travellers have disinguished between them. The former has the leaves hastate, that is, the basal lobes are not connected behind the insertion of the stalk, as in Colocasia.

There are, locally, two varieties of Xanthosoma, one with green and the other with purplish stems; the former has white tubers, while those of the latter are reddish in colour. There is also a slight difference in taste. The large, arrow-shaped leaves may be eaten as Spinach when still young and tender. This vegetable may be grown from sea level to an altitude of 5,000 feet (say 1,500m.), but the best qualities are grown in the lowlands. Propagation is similar to that of the Yam.

The genus Colocasia is represented only by a single species, and this is not much cultivated; it is the plant called Taro in the Pacific Islands where it is the staple food.

The Sweet Potato, the Camote of the Honduraneans (Ipomoea Batatas), is also an important article of diet in the Bay Islands. It is apparently indigenous of both hemispheres and is cultivated in tropical and semi-tropical countries. It prospers best in moist soil in low altitudes; in Central America it does not do well at an elevation above 3,500 feet (say, 1,000m.). The Sweet Potato is a vine with a trailing stem and purple flowers. As it creeps along it sends down roots from every node resting on the ground, and from these roots develop numerous tubers—the edible part of the plant. *Edouard Conzemius, 33, Boulevard des Batignolles, Paris.*

(*To be continued.*)

THE DUTCH ELM DISEASE.

During the past few years a serious disease of the Elm has appeared in several countries in North-west Europe, and in order to prevent the spread of this disease into England, the Ministry of Agriculture has recently issued an Order prohibiting the importation of Elms from Europe into this country.

The disease was first observed in Holland in September, 1919, at Tilburg in North Brabant, and has steadily spread, until at present it is found all over that country. It was recorded over the whole of Belgium in 1921, and in the same year in France, north of the Seine. In 1924, it was found in Germany, in Rhineland, Westphalia, Bremen, Nurenburg, Potsdam and Bonn, and at Aix la Chapelle in 1925. Diseased Elms, showing exactly the same symptoms as those of the Dutch Elm disease were observed in 1926, in Oslo and in a considerable number of localities in eastern Norway, and it is probable that the disease first appeared in that country in 1920. The disease has not yet been observed in Sweden or Denmark. It has not been found in the United States.

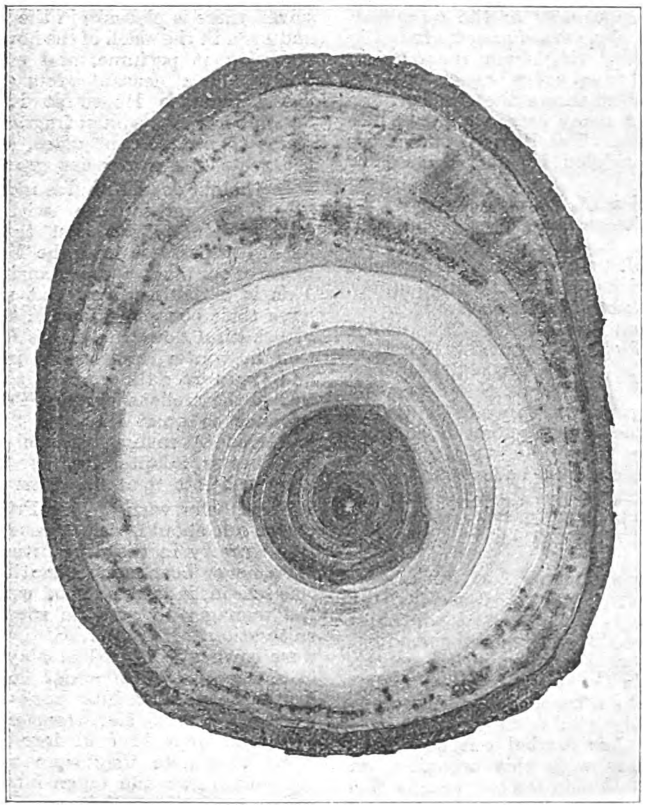


FIG. 69.—TRANSVERSE SECTION OF TRUNK OF A DISEASED ELM.

Very extensive damage has been caused by the disease in Holland, where Elms are found frequently throughout the country. In some towns, where these trees had been planted along the road sides, the destruction has been very great, and hardly a healthy tree now remains. Several accounts of the disease have appeared in Germany, and recently it has attracted considerable attention in Norway, where a description of the disease and its occur ence in the country has recently been published in one of the daily papers at Oslo.

When trees are attacked, a mass of dry twigs and leaves appear in the crown, while the surrounding parts are yet green. The disease then gradually spreads over the whole tree and kills it. In young trees, from fifteen to twenty years old, the process usually takes a few weeks, but in some cases trees may lose their healthy appearance in three days, and the leaves may fall in the course of a week, leaving the tree quite bare. In trees from sixty to eighty years of age the disease spreads more slowly, and death may only take place after the lapse of several years. Such trees bud each year, but the leaf mass is thin and the leaves soon fall. Trees in which the twigs dry up early in the summer may produce fresh shoots, but these, in turn, wither. In winter, diseased trees can be recognised by the curved ends of the small twigs in the crown.

The disease has been found in the nursery where trees of four years and older are attacked. Young plants produced by layering have not been found infected.

In cross section diseased twigs and branches show a ring of brown spots just inside the bark (Fig. 69). These are usually in the outermost annual ring, but in some cases may be found in the second and third ring from the outside. In severely diseased trees, every branch from the thickest to the smallest shows the discoloration of the wood and, in many cases, this may also be seen in the roots. The bark of such trees is almost always riddled by the burrows of bark-beetles.

Almost all species of Ulmus appear to be attacked. The disease has been found on Ulmus campestris latifolia, U. c. suberosa, U. monumentalis, U. hollandica, U. nitens var. Ruepellii, U. americana and U. montana. U. vegeta is said to be not attacked in Holland.

Up to the present the cause of the disease has not been definitely determined. No fungal hyphae can be found in the diseased branches, the discoloration being due to the deposition of a dark brown granular substance in the vessels of the wood. Some investigators in Holland believe the disease to be due to the fungus Graphium ulmi, which has been obtained along with several other organisms from the diseased branches. Infection experiments with this fungus have, however, all given negative results.

It has also been suggested that the disease is due to physiological causes, especially the dry summer of 1921, and the cold winter of 1923-4, but as the disease is still spreading, this explanation seems inadequate. Recently. Brussoff, working in Germany, has stated that the disease is due to a bacterium, Micrococcus ulmi, which he has isolated from diseased trees. He states that he has carried out successful infection experiments with this organism on healthy Elm trees. Within the last year he has stated that the disease also attacks species of Acer, Tilia, Populus and Fagus, but he has not performed infection experiments on these trees. Although Brussoff's work does not appear to be altogether satisfactory, and requires confirmation, it is, up to the present, the best explanation that has been given.

As the disease is wide-spread in the four continental countries nearest to Britain, it is possible that, in spite of the prohibition of the importation of Elms, the disease may appear in this country. Any suspicious cases should, therefore, be at once submitted to mycological examination, so that, if the disease proves to be present, steps may be immediately taken to prevent its spread. Owing to its nature the disease is not one that can be easily identified and its presence can only be determined with certainty by a complete and thorough examination of the suspected tree.

In view of its very serious nature the Dutch authorities are now undertaking an extensive investigation of the disease in all its aspects. The block from which the illustration shown in Fig. 69 is taken has been kindly supplied by Miss Dina Spierenburg of the Dutch Phytopathological Service who has already published the results of an important investigation into the disease. *Malcolm Wilson, Mycological Department, University of Edinburgh.*

NURSERY NOTES.

PRIMULAS AT FOREST HILL.

In winter, when the out-door garden is drab and uninviting, a warm greenhouse or conservatory is a great asset, for such a house enables the owner to enjoy the beauty of flowering and foliage plants at a time when they are most appreciated. Probably the two most popular indoor winter-flowering plants in private gardens are Primulas and Cyclamens, for they are serviceable, easily grown and most attractive; of the two the Primula is supreme.

Messrs. James Carter and Co. have long specialised in these beautiful flowers, and they grow large batches of all the best varieties at their nursery at Forest Hill for the special purpose of seed-production.

The Chinese Primula may be used for many purposes, and the modern varieties reach a high standard of perfection. There is a feeling of delight in entering a glasshouse filled with bright plants, such as Primulas, in winter, for, apart from the interest of the plants themselves, there is pleasure in the genial atmosphere and even in the smell of the house, for few flowers are without perfume, and even many foliage plants emit a pleasant odour; those who know the Temperate House at Kew Gardens will remember the peculiar fragrance which always seems to pervade the place, said to be due to the roots of the Acacias grown there.

In the old days Mimulus moschata, the Musk, filled the greenhouse with its fragrance, summer and winter, but this plant has lost its sweet perfume and the Musk-laden atmosphere of our plant houses remains only a memory. This is a distinct loss, but modern gardeners have their compensations in the greater wealth of beautiful flowering plants for indoor cultivation in winter, and vastly improved varieties and types over those of old times. The evolution of the stellata type of Primula marked an advance so great that the Star Primulas are preferred by many, because of their lightness and better adaptability for association with other subjects than the giant forms.

Those who wish to see Primulas growing to perfection should visit Messrs. Carter's Forest Hill Nursery in the near future, for the plants have never been more beautiful than they are this season, indeed, so good were they, we asked the manager to give us some details of their cultivation. He informed us that the seeds were sown at the end of May and germinated in a temperature of about 50°. The seedlings were pricked out into boxes and when they were of a suitable size, transferred to sixty-sized pots and kept in cold frames until October. From that date they were potted into forty-eight-sized pots and taken into the glasshouses, which were kept quite cool. As the plants require very careful watering at all stages of their growth, plenty of drainage is necessary, and very porous soil should be used. The compost employed at Forest Hill consisted of three parts loam and one part leaf-mould, mixed with a liberal quantity of old mortar rubble, some sand and rotted manure. If the plants are grown well and kept perfectly hardy they are not likely to be attacked by insect pests, but fly is sometimes troublesome and if this appears the houses should be lightly fumigated, XL ALL being employed at Forest Hill for the purpose.

As Messrs. Carter's plants are grown for seed production, they are not required to flower until the turn of the year, when the days become brighter and the conditions generally more suited to seed-production than in mid-winter. If, however, the plants are required to bloom early, say from November onwards, the seeds should be sown in March and the plants grown on in slightly more heat during October and November. As the latest batches will carry on the succession of blooming until April it is an easy matter to have these Primulas in bloom for six months of the year.

With regard to varieties, it is very difficult to state which would be awarded the Palm, but, in our opinion, it would rest between Stellata White and Princess May, which is an old, but still unsurpassed variety, having the largest flowers of its family, of a light coral-pink colour set off by beautiful, light green foliage, and borne in big trusses on strong stems; some of the individual flowers measure so much as two-and-a-half inches across. The Duchess, which is one of the most distinct of all Primulas, is represented at Forest Hill by an improved strain with very big flowers. It was interesting to note that of the many dozens of this variety every specimen appeared to be an exact counterpart of the others, and all were of perfectly compact habit. The Duchess originally crossed with Stellata White, gave the well-known Fairy Queen, which in turn produced a beautiful pink form known as Fairy Queen Pink.

It is interesting to notice the difference in the type of foliage to be found in these Primulas. Elaine is a Fern-leaved variety, but most of them have palmate foliage. There are other differences: certain sorts develop several secondary shoots around the main inflorescence, such as in Crimson King, and these make very profuse flowering plants; the inflorescences also vary in height, some of the giant forms, such as Giant White, having such tall spikes as to suggest Stellata parentage. The tall truss of this variety bears many very large, pure white blossoms and with the side trusses makes a very floriferous specimen. Holborn Coral has also a tall inflorescence of the giant type; the name indicates its colour. The Primula nearest approaching a blue shade is Holborn Blue, a variety that forms a compact plant with a well-balanced truss of large, lavender-blue pips.

One of the choicest of the Star Primulas is Fairy Queen Improved, with flowers of the Duchess type. The whole growth of the plant is exceptionally strong and it is very free-flowering, the blossoms being well set off by the dark-coloured foliage. Crimson King Improved is a superior form of the old variety of this name, with much larger flowers of very rich colour.

These are a few of the varieties that especially appealed to us, but there are many others of great merit, including a series of doubles which come perfectly true from seed. Prince of Wales and Princess of Wales are both exceptionally good in this section.

The Chinese Primulas are still grown in the old range of houses at Forest Hill; the new range contains other plants of interest, and among them a big batch of P. malacoides, outstanding varieties of this species being Princess Mary, a beautiful mauvy-pink form with bigger flowers than those of King Albert, and Princess Patricia, a very light and elegant plant bearing beautiful pink blossoms. P. malacoides Golden Eye, for which Messrs. Carter's obtained an Award of Merit at the R.H.S. meeting on April 11, 1925, is represented by a fine stock, and just now the plants are in the perfection of beauty.

One of the new plant-houses is almost filled with a collection of seedling Lachenalias; others contain Cinerarias, greenhouse Calceolarias and similar plants which will be included in the firm's exhibits at Chelsea and elsewhere.

PUBLIC PARKS AND GARDENS.

Dagenham Urban District Council has decided to ask the London County Council if it is prepared to hand over to the Council Parsloes Park for use as a public recreation ground.

Blackpool Parks Committee has approved plans for the construction of recreation grounds at the Gynn, Watson's Road and Layton.

Middlesex County Council has received the sanction of the Ministry of Health to borrow £2,607 as a contribution towards the cost of acquiring land in Lampton Road, Hounslow, by the Heston and Isleworth Urban District Council, for a recreation ground.

VEGETABLE GARDEN.

SPINACH AND SOME SPINACH SUBSTITUTES.

MOST private establishments demand a supply of Spinach, or one of its substitutes, at almost all periods of the year.

Although it is a fairly easy matter to grow these vegetables, hot soils are not suitable for summer production, whilst wet land is inimical to winter cultivation. In both cases steps may be taken to improve these unfavourable conditions

Spinach is divided into two main sections, summer and winter Spinach. For supplies of the former the round-seeded varieties are used, and the prickly-seeded kinds were invariably used for winter cropping. It has now been established that the round-seeded varieties, which are usually more bulky in leaf, may also be grown successfully in many localities as a winter crop.

Spinach will grow successfully in most kinds of soil provided it is not deficient in lime, but the ground should be worked deeply and receive generous supplies of humus for the summer crop, which is very liable to run to seed prematurely, much depending upon conditions favouring quick growth to bring this crop to perfection.

Spinach is frequently grown as an intercrop between early Peas, and the method of preparing the ground for Peas suits it.

Make the first sowing towards the end of February and continue to sow at fortnightly intervals until about June, or so long as the soil conditions are favourable to its development, choosing a cool situation as the season advances. The rows should be from fifteen inches to eighteen inches apart. Thin the seedlings in the first instance to four inches, and later take out every alternate plant when it has attained a usable size. Constant hoeing and the application of a quick-acting fertiliser, should this be necessary, is the only additional treatment required. Victoria and Long-Standing Round are both good varieties for sowing at this period. To provide pickings from October to May, make two or three sowings from about the beginning of August to the middle of September, according to the locality and requirements. Choice of position and soil are important factors for this crop, for it will not succeed on low-lying, badly-drained ground. If necessary the land should be made up into slightly raised beds. Sow the seeds in drills made twelve inches to fifteen inches apart, and when the plants are large enough, thin them to four or six inches asunder. Where it is possible to rely on the round-seeded varieties, Broad Flanders and Thick-leaved Round will be found suitable. In districts where the round-seeded type is not a success a good stock of Prickly or Winter Spinach should be sown. It is a good plan to choose for the late sowing a variety that is slow in running to seed in the spring, and King of Denmark is excellent.

Other kinds of plants are used as a substitute for the true Spinach, chief amongst these being the Spinach Beet, or Perpetual Spinach as it is frequently called. This is grown in the same way as the ordinary Beet except that the soil should be richer, as in this case it is the leaves that are required. Sow the seeds in April and again in July for later supplies, in rows made fifteen inches to eighteen inches apart, thinning to ten inches from plant to plant. So soon as the leaves are large enough they should be gathered, even if not required for use.

For the hottest part of the year, especially on dry soils, New Zealand Spinach will be found useful, and should revel under these conditions. It is a rather tender plant during its early growth and it is not advisable to sow the seeds in the open before the end of April or early in May. The rows should be three feet apart. Place the seeds in little clumps at intervals of two feet, and thin the seedlings to one in each position. The plant requires a good space in which to develop as it makes many side-growths, often forming a dense carpet. When it is desirable to produce this crop earlier, seeds may be sown under glass in April and the seedlings planted out when they are hardened suitably.

The young, tender shoots are the parts used. Chenopodium Bonus-Henricus, commonly called Good King Henry, is well-known as a Spinach substitute, especially in the cold north-east districts of England. Of perennial habit, it may be raised from seeds, and it grows quite well in fairly good soil in any odd sunny corner of the garden. When once established it requires very little attention beyond keeping the ground free from weeds and top-dressing the plants with rotted manure during the winter. *J. Wilson, Wisley.*

HOME CORRESPONDENCE.

Citrus Fruits at Porlock.—After the wonderful exhibit of Citrus fruits from La Mortola arranged at the Royal Horticultural Show on Tuesday, January 25, it may interest those who were at the show to know that in our garden at West Porlock House, a few days ago, I ate a sweet Orange from a tree in a tub standing on the flags outside the sitting room window; the Orange was delicious, sweet and juicy. All through this last autumn we have eaten Tangerines picked from trees in tubs standing out-of-doors. I notice they have no pips and are much more strongly scented than those one buys. In the spring we put the Orange trees into a cold house to avoid the worst storms, and there they remain for a month or two. The bitter Oranges we have planted at the foot of the garden walls; several bushes are fruiting and the fruits are colouring well. Last June my cook turned seventy-five of our bitter Oranges into very good marmalade, and again on November 20, I picked thirty-one good fruits which gave us 16 lb of marmalade. We have a Citron trained on the wall, and this is well-set with fruit; there was also a Lemon which did fairly well until a mouse ate the bark near the ground and the tree died. *Mrs. G. Blathwayt, West Porlock House, Somerset.*

Virburnum fragrans.—This delightful shrub, collected by Farrer in China, deserves to be more generally planted. Its flowers, freely produced in the open during January and February, are of a rosy-white hue, and as the name suggests, they are wonderfully fragrant. It has a neat, erect habit, which gives it an attractive appearance during the summer months. V. fragrans requires no particular soil or conditions, but undoubtedly prefers the drier part of the garden. *S. R. D.*

Promise and Performance.—Sir William Lawrence's notes (p. 69) are of considerable interest, and underlying them is the basis for certain reforms in the nursery trade; but with the stern competition existing therein, the cutting of prices which results, and the necessity of "making a living out of it," I doubt if it is possible to attain the ideal suggested. Undoubtedly, nurserymen should rely more closely upon the Kew nomenclature, so that their customers may avoid the pitfall of purchasing a plant which they already have, and do not desire to repeat, but which attracts them by appearing under an out-of-the-way synonym. The shrewd hit at the fancy varietal names deserves every attention, for some of these appellations are as far-fetched as can well be imagined. The heights of plants are already given by some nurserymen, but appeal to the writer as being often inefficient, and likely to cause customers more heartburning than if they were omitted, unless used solely for contrast between different batches of the same subject. For example, supposing the tradesman offered plants from six to ten feet high and his customer, owing to a late order, received examples of the small size, would he not probably be more disappointed than if he had not known the probable measurement? Cultural hints and notes as to hardiness, habitat, soils and positions for growing might well be increased in catalogues, to the benefit of the nurseryman who adopts this idea, especially where a plant is regarded as being tender in any locality, but I am afraid that the suggestion of adding this to the *pro forma* invoice is impossible, for the man in the trade will ask: "Who is going to pay for all this?" In these days of high costs I am afraid the trade would not be able to support the added cost, and the customer would not desire it to be passed on to him. *One interested.*

Deep Trenching.—I desire to express my appreciation of the courteous tenor of your correspondent *G. D.* (p. 73) in his remarks anent my recent notes on this subject; it is a pleasure to read such a criticism. Particularly do I thank him for drawing attention to a point on which I might have been a little more lucid in the first place. This is with regard to the blanks shown in the picture of the plants on the untrenched ground (Fig. 216, Vol. LXXX). These gaps were, unquestionably caused solely by the lack of attention to the preparation of the ground, necessitated by economic considerations at the moment, for the soil, not being trenched, had a hard pan of clay which collected the water and left the top soil completely water-logged, with a result that the plants failed to restart after their check during moving, and subsequently died, leaving the vacant spaces shown. The other Broccoli, which were planted only a trifle later, had not this obstacle to their development, for the ground was open and water did not remain near the surface; they made headway and afforded a marked contrast to those on the untrenched area. This pan of clay affects adversely both newly-planted and established plants, because in spells of drought it hardens and prevents the roots going down in search of the necessary moisture at a time when they most need it. I do not preach what I have never practised. Only too well can I recall the labour I experienced in trenching, especially in my youth; and having gained my experience on various soils, such as chalk, sand, gravel, loam and clay, I am the more convinced that it is of enormous benefit to trench to a good depth all kinds of ground, and if your correspondent will only have some of his tenacious red soil broken up and brought to the surface, and compare results then obtained with those on untrenched ground he will, I feel sure, see exactly what I mean. It is a heavy task, I know, but where all the ground cannot be trenched at once, then my plea is for as much to be trenched as can be managed. My first acquaintance with trenching was when, as a youth, working with my father, he insisted on a heavy chalk subsoil being brought to the surface. Despite my boyish groans and protests, this was carried out, and the main reason was his fondness for exhibiting. As an exhibitor, he was admirable, but had not met with the success he desired to attain, especially with root crops, such as Parsnips, with the result that he adopted the deep-trenching method, and from that time he never looked back, but reached the level of success which impressed me with the efficacy of the system. I have nothing to gain in advocating deep trenching, but recommend it for the benefit of the whole community, for I sincerely believe that if carried out in this country as it should be, it would result in an increase of our production by so much as seventy-five per cent., not only in horticulture, but agriculture, for I still urge that this deep working of the soil, whatever its character, is of benefit to practically all forms of plant life in the British Isles. I cannot, of course, locate your correspondent from his initials, but suggest that if he is within reach of Aldenham, or likely to be near here at any time, I should like him to come and see our results, and in addition to the pleasure of meeting him, I should be able to demonstrate the character and disadvantages of our soil and how we cope with them. *E. Beckett, Aldenham Gardens, Elstree.*

Salvia virgata nemorosa.—This Salvia, referred to on p. 115, should be much more widely known by gardeners. It is quite hardy and grows to a height of two-and-a-half feet. The flowers are blue, and after the lower bracts have fallen there is quite a distinct purple colour that enhances the effectiveness of the plants. The flowering period is from July to November. This Salvia is seen to advantage when planted two feet apart in large beds. Cuttings that were propagated last August are now ready for potting into 60's, and this work is being carried out now, there being a batch of three thousand to pot. Our largest bed is a round one, forty-eight feet in diameter, and all last season was a blaze of colour and greatly admired by those who saw it. Goodwood and Lowther Castle are the only other two places which I know where Salvia virgata nemorosa is grown by the thousand, and I feel sure Mr. Jeffery, of Lowther Castle Gardens, agrees with me that Salvia virgata nemorosa makes a grand display. *Arthur Allardice, Burwarton Hall Gardens, Bridgnorth.*

The Destruction of Rats with Calcium Cyanide.—I was interested to read in one of the late issues of *The Gardeners' Chronicle* how to destroy rats with calcium cyanide. It is very easy indeed to get rid of these pests. In one corner of the pleasure grounds here we have a lot of old soil, tree stumps and rock, where a great number of rat holes exist. I placed two tablespoonfuls of the cyanide in different holes filling the rest in and treading all firmly. The holes in which the cyanide was placed were also filled in. I advise this to be done on a calm day. I observed that when the ground was covered with snow for three days not one hole had been opened by the rats and no traces of them have been seen, so I think we have effectually destroyed the pests. *G. Moore, Brackenburgh Tower Gardens, Carlisle.*

Lathyrus tuberosus.—Mr. Briscoe gives an interesting account of the above wild plant in *The Gardeners' Chronicle* of January 22. He seeks information as to whether it has been found in other parts of the country than Essex, and states that it was found growing wild last season in a field near Ledbury Park, Cheptow, and staged at a local show in a collection of wild flowers. This plant is pretty well known through the Wye Valley, around Monmouth and the Forest of Dean, and I have seen it exhibited at many local shows in children's classes of wild flowers. As Mr. Briscoe suggests introducing it into the garden, I may state that I have had experience in this matter, but found it very difficult to establish. If an attempt is made, the roots should be marked when found and moved when growth is completed, otherwise a good turf should be taken up, keeping the roots intact. L. tuberosus is certainly all that Mr. Briscoe considers it, and there is no reason why good use should not be made of it for hybridising purposes. Another plant that grows wild around the above-mentioned district is Saponaria officinalis, both in single and double form; this is an ideal subject for the wild and woodland gardens. *W. E. Wright, Tregarth Gardens, Creigiau, Near Cardiff.*

Buddleia Forrestii and B. Fallowiana.—The thanks of the shrub-loving section of the horticultural world are due to *The Gardeners' Chronicle* for having through its columns, by the publication of letters and illustration, indicated the widespread confusion of these two plants, and it is to be hoped that all distributors will take note that the plant they have been sending out as B. Forrestii is henceforth to be known as B. Fallowiana. The original plant in our collection was received from the Royal Horticultural Society's garden at Wisley several years ago as part of their annual distribution of surplus plants, and the probability is, that from this source alone, many hundreds of the erroneously-named plant have found their way into the widely-scattered gardens of Fellows, who would never for a moment doubt the correctness of any name supplied from these famous gardens. If this should be the case, it might be advisable to insert a correction in the next issue of the R.H.S.'s *Journal*, as by so doing, a great number of the recipients of the wrongly named plants would be reached. Personally, I was delighted to see the splendid reproduction of this plant in Vol. LXXX, page 489, and recognised at a glance the woolly leaves and branching habit of the plant, as it flowered here the previous autumn, and which had already found a hearty welcome under the name of B. Forrestii. *A. T. Harrison, Culzean Castle Gardens.*

SOCIETIES.

GUILDFORD CHRYSANTHEMUM.

At the annual meeting of this Society, held on Monday, January 24, Mr. F. W. Westlake presided in the unavoidable absence of the President, Alderman F. F. Smallpeice.

The annual report, presented by the Secretary, Mr. W. J. Miles, stated that the thirty-fourth annual exhibition held in November last, was not quite up to the previous standard in regard to the number of exhibits, the decline being in the fruit classes and due to the poor season.

The statement of accounts, presented by Alderman W. T. Patrick, showed total receipts, including the balance brought forward, of £255 7s. 4d.; expenditure, £151 4s. 1d., leaving a credit balance of £104 3s. 3d.

Alderman Smallpeice was re-elected President, and Messrs. Patrick, Miles and A. H. Olds, re-elected to the respective offices of Treasurer, Secretary and Auditor. Owing to the death of Mr. G. J. Nichols, there was a vacancy on the Committee to which Mr. Lampard of Holmbury-St.-Mary was elected. The other members were re-elected.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, February 3, 1927.—*Committee present:* Mr. J. B. Adamson (in the chair), Mr. R. Ashworth, Mr. C. Branch, Mr. A. Burns, Mr. A. Coningsby, Mr. D. A. Cowan, Mr. J. Cypher, Mr. J. Evans, Mr. A. Keeling, Mr. D. Losh-Thorpe, Mr. D. McLeod and Mr. H. Arthur (Secretary).

First Class Certificates.

Brasso-Laelio-Cattleya Amber var. G. V. Llewelyn (B.-L.-C. The Baroness × C. aurea).—A fine flower with rich yellow sepals and petals; lip rose-lilac with yellow marks.

Cattleya Clotho var. G. V. Llewelyn (Enid superba × Trianae Edgar Knight).—Flower of perfect shape, broad, deep mauve sepals, with a stripe of reddish-purple at the tips; large lip, reddish purple. Both these were from G. V. Llewelyn, Esq.

Odontoglossum Crispo-Solon var. Prince Albert.—A flower of perfect shape; all the segments are heavily blotched with reddish-brown, with white margins; lip flat, white at the base. From J. B. Adamson, Esq.

Cypripedium Christo-biades (Christopher Grand Duke Nicholas × Eurybiades).—A large flower of Christopher type, dorsal sepal white with green base, heavily spotted in the centre with reddish-purple spots. From S. Gratrix, Esq.

Awards of Merit.

Odontoglossum L'Aiglon var. Tracery, Odontoglossum Dryad, and *Brasso-Cattleya var. Mrs. Ernest Wood.*—From G. V. Llewelyn, Esq.

Odontioda Joiceyi var. Royal George.—From J. B. Adamson, Esq.

Cultural Certificates.

To Mr. C. Branch, for Odontioda var. Viscount Lascelles, and to Mr. A. Burns, for Platyclinis uncata.

Groups.

J. B. Adamson, Esq., Blackpool (gr. Mr. J. Howes), staged a group to which a Gold Medal was awarded. Odontoglossums included O. Crispo-Solon var. Prince Albert, O. L'Aiglon var. Tracery, O. Dryad and O. crispum Baron Renfrew; Odontioda Joiceyi var. Royal George, O. Chanticler and O. Beryl var. Margaret; Cypripediums and Cattleyas in variety were also shown.

S. Gratrix, Esq., West Point (gr. Mr. C. Branch), was also awarded a Gold Medal for a group that contained Cypripediums in great variety, including C. Robert Paterson; Odontoglossum ardentissimum McBean's var., O. Tharo, O. Arabic, O. Llewelyn and plants of the O. crispum section, besides many good Odontiodas.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), staged a group to which a Large Silver-gilt Medal was awarded. This included a fine batch of Laelia Gouldiana, and several well-flowred examples of Platyclinis uncata.

G. V. Llewelyn, Esq., Southport, staged Cattleya Clotho var. G. V. Llewelyn, B.-L.-C. Amber var. G. V. Llewelyn, B.-C. British Queen var. Mrs. Ernest Wood and Cypripedium Curtisii exquisitum.

Messrs. J. Cypher and Sons, Cheltenham, were awarded a Silver-gilt Medal for a group containing Cypripedium Alabaster, C. Ballet Girl, C. Cupid, C. Bridgei and C. insigne var. Snow Queen; Cymbidium Albatross, C. Alexanderi and C. eburneo-Lowianum; Dendrobium Juno, D. Ainsworthii, D. aureum, D. Cassiope and D. nobile. Messrs. A. J. Keeling and Sons, Bradford, staged Cypripediums, and Mrs. John Evans, Colwyn Bay, exhibited Cypripedium Memoria F. M. Ogilvie var. The King.

ORCHID CLUB.

At the meeting of the Orchid Club, held on the 11th inst., Dendrobiums, Cymbidiums and Lycastes were fine features in some beautiful groups. The well-flowered plants of Dendrobium Tyntesfield, shown by Mrs. Fred Hardy, were greatly admired.

Diplomas of Merit.

Dendrobium Discus (D. Tyntesfield × D. Cybele).—A large flower of perfect shape; the broad sepals and petals are white at the base, the outer half being bright crimson. The large open lip has a rich, velvety maroon mask and a marginal white band, the tip being crimson. A new seedling of great promise and free-flowering, the beautiful flowers being well displayed by the erect habit of the trusses. From Dr. Craven Moore.

Odontoglossum crispum var. Cedric.—A hybrid white crispum having flowers three-and-a-half inches across, of perfect shape and good habit, the only colour being some crimson spots on the lip. From Dr. Craven Moore.

Odontoglossum Pyramus var. Conyngham.—A well-shaped flower, three-and-a-quarter inches across; the sepals and petals are bright crimson-red, slightly broken with white, the lip being flat, well-displayed, white with crimson blotches. From Dr. Craven Moore.

Certificate of Cultural Commendation.

To Haemaria discolor.—A beautiful plant in a ten-inch pan, carrying twenty-three full spikes of white flowers. From B. T. Beckton, Esq.

Groups.

B. J. Beckton, Esq. (gr. Mr. Stewart), exhibited a large group containing some twenty Cypripediums of fine quality and merit, of which the exquisitely-coloured C. Fairville, C. Caractacus var. Paraseve, C. Hermeville and C. The Chairman, were especially good. The remaining forty plants included several good varieties of Lycaste Skinneri, and a wide selection of intersting and beautiful species, among which the unique plant of Haemaria discolor and fine types of Sophronitis grandiflora, Masdevallias and Miltonia were conspicuous.

Mrs. Fred Hardy exhibited six large, freely-flowered plants of the beautiful Dendrobium Tyntesfield (D. nobile Hardyana × ?). A. T. Cussons, Esq. (gr. Mr. Dalgleish), staged a group in which Cypripediums and Cymbidiums were conspicuous, Cymbidium Schlegellii var. Kervalli, and C. Pauwelsii being in beautiful form.

Dr. Craven Moore (gr. Mr. Golden), exhibited a large group of fine Odontoglossums and Cymbidiums. Of the former there were many fine varieties of O. armainvillierense xanthotes, and xanthotic crispums; with hybrid crispums of fine quality, and among the coloured hybrids, excellent forms of O. Dictune, O. Marathon, O. Pyramus and O. Migueleto. The Cymbidiums included C. Castor var. The King, C. Coningsbianum, of exceptional merit, and a fine variety of C. albanense. Two fine plants of Dendrobium Lady Colman and two of the new Dendrobium Discus were included in the group.

Mrs. Stockwell (gr. Mr. Weaver), exhibited a small group of Cypripediums and Odontoglossums, including C. Alcibiades, C. Vashti, C. Maudiae and C. Maudiae coloratum, and O. Gladys var. Conyngham—a specially fine form of this pretty O. cirrhosum hybrid; and some good white forms of O. crispum. F. T. Paul, Esq., showed some beautiful flowers of Laelio-Cattleya Schroderae, Brasso-Cattleya Thorntoni, and various Cypripediums, including C. Lady Evelyn James, C. Leyburnense and seedlings.

ROYAL GARDENERS' ORPHAN FUND.

The Annual General Meeting of the subscribers of this horticultural charity was held on Wednesday last at Simpson's Restaurant, Strand, Mr. David Ingamells, Chairman of Committee, presided, and others present were Mr. J. F. McLeod, Mr. Peter R. Barr, Mr. John Gregory, Mr. Geo. F. Tinley, Mr. W. Howe, Mr. R. B. Leech, Mr. C. H. Curtis, Mr. D. Swain, Mr. John Cull, Mr. J. N. Bridgeford, Mr. D. Campbell, Mr. A. Dawkins and Mr. J. Linford.

After the Secretary had read the notice convening the meeting, and the minutes of the last annual meeting had been read and signed, the annual report of the committee for 1926 was submitted to the meeting.

EXTRACTS FROM THE REPORT OF THE EXECUTIVE COMMITTEE.

In presenting their thirty-ninth Annual Report, your committee tender grateful thanks to all the subscribers for their continued support which enables them to extend relief to the orphan children of gardeners and others in allied callings, who have met with the great misfortune of losing their fathers. Your committee has been enabled, through this generous support, to grant extended allowances for several children whose work at school has shown great promise. Many of these children have won scholarships, and your Committee feel that the further education thus obtained will be of great value to the children and to the country generally in fitting them for their work later in life. In these instances the headmasters of the schools have given their pupils excellent reports.

In view of the greatly reduced purchasing value of money, your Committee has, for some years past, desired to recommend an increase in the amounts of the weekly allowances made to the children. A special sub-committee most carefully investigated the matter, but regretfully reported that the available income of the Fund was not sufficient to enable them to recommend any increase at present.

The total income of the Fund, from all sources, during the past year amounted to £3,807 6s. In continuance of its financial policy, your Committee has made a further contribution towards restoring the Invested Funds to their pre-war position.

The Annual Festival Dinner, which was held at the Hotel Victoria on July 14 last, was again the means of very materially augmenting the Fund's income. Your Committee would offer the Fund's sincere thanks to Mr. George J. Nicholls, C.C., F.R.C.I., who kindly presided and worked wholeheartedly for the success of the Dinner. In addition to devoting a deal of valuable time to the arrangements, Mr. Nicholls generously made a gift of sufficient shares in his business to form a fund to provide for one orphan in perpetuity.

Your Committee are most pleased to be able to report that Sir Henry Whitehead, of Stagenoe Park, Welwyn, has kindly promised to preside at the next Dinner, which has been arranged for May 20, 1927.

Your Committee again wish to acknowledge, with heartiest thanks, the valued contributions from gardening associations during the past year.

Considerable amounts were also collected by Mr. W. Auton, Pyrford Court Gardens, Woking, Mr. T. H. Cook of the Royal Gardens, Sandringham; Mr. Joseph Lytle, Garden Supplies Co., Liverpool; Mr. T. Pateman, Brocket Hall Gardens, Hatfield; Mr. Wm. Rowe, Squerreys Court Gardens, Westerham; Mr. P. O. Knowles, Head Gardener to Sir Percival Victor, Bt., at Friar Park, Henley-on-Thames; Mr. C. Nippard, Bournemouth; Mr. A. H. Fulker, Reading; Mr. Wm. Austin (of Glasgow), Harrogate; Messrs. Wm. Thomson and Sons, Clovenfords, and the Rev. A. Lowe, Rangemore Vicarage, Burton-on-Trent, chiefly by means of concerts and other entertainments. Your Committee desire to record their great appreciation of the work thus done on behalf of the Fund.

It is with deep regret that your Committee have to record the loss the Fund has sustained, during the past year, by the deaths of valued supporters of the Fund. Mr. T. W. Sanders, late Editor of *Amateur Gardening*, and Mr. G. Reynolds, of Gunnersbury Park Gardens, were for many years, until medical reasons compelled their retirement, regular in their attendance at committee meetings and untiring in their efforts for the Fund. Through the deaths of Mr. F. W. Curry and Mr. T. H. Windle, the Fund has also lost valued supporters, and your Committee express their deep sympathy with the relatives.

The members of the Committee who retire by rotation are Messrs. D. Ingamells, R. B. Leech, J. F. McLeod, A. W. Metcalfe, T. Pateman, D. Swain, G. F. Tinley and John Wort, who, being eligible, offer themselves for re-election. For the vacancy caused by the death of Mr. G. Reynolds your Committee wish to nominate Mr. W. G. Penton, of Warren House Gardens, Kingston Hill, Surrey.

The Chairman, in moving the adoption of the report, stated it was so very full of information that it left little for him to say, but he would like to offer the thanks of the Committee publicly to all who have supported the Fund during the past year. The adoption of the report was seconded by Mr. C. H. Curtis, who stated the report paid a happy tribute to the many friends who had helped the Fund during the past twelve months, and he hoped the example of those who had assisted by holding concerts, etc., would be copied by others, for it was one of the best means by which gardeners and others living in quiet, country places could render assistance. Although all were pleased to know that there were so few orphans forthcoming, he thought this was one of the reasons why the Fund had suffered in loss of income, but he had no doubt that when there were more orphans there would be more support.

The report was adopted without further comment.

Mr. Peter R. Barr presented the cash statement for 1926. He stated that the accounts had been very carefully audited by Mr. Witty and himself and he complimented the Secretary on the manner in which the books were kept. He stated that subscriptions, including those from local secretaries, amounted to £288 10s. 8d.; donations (general) to £289 18s. 6d., and donations from local secretaries, £48 14s. 6d., making a total of £338 13s. 0d. The proceeds of the annual festival dinner amounted to £440 3s. 2d., whilst the revenue from advertisements was £14 5s. 6d., and dividends came to £467 15s. 9d. These sums, together with a balance from the last account amounted to £3,807 6s. 0d. Payments included children's allowances, £894 10s., which, together with various grants, involved total payments to the orphans of £956 7s. 6d.; the Secretary's salary amounted to £195 16s. 8d.; rent, insurance, firing, etc., £78 14s. 1d.; printing and stationery, £57 1s. 0d.; and printing and posting list of subscribers, £61 6s. 8d. These amounts, with other small sums, made total payments of £1,380 4s. 0d. Mr. Barr said the Fund had purchased five per cent. War Stock at a cost of £1,515 4s. 0d., and the cash at the bank, on deposit and in hand, amounted to £911 18s. 0d. A considerable amount of the balance was required to meet payment of the children's allowances on the 1st January. Mr. Barr stated that the receipts were down last year in comparison with 1925, for there was a reduction in the donations, and the proceeds of the annual dinner. The cost of printing had also increased. On the other hand, payments to the children, including grants, were down, and the cost of the postages also was lower.

Mr. Cull asked for the reason of the rather heavy payments for printing the List of Subscribers and for the printing generally; he was informed that the printing had been done for the annual dinner, when the latter had to be cancelled owing to the strike, and the printing had all to be done again. The Secretary also stated that the printing included a new register book, which lasted five years, and posters which were to be used for advertising the Fund, both of which expenses would not be recurring.

On the motion of Mr. McLeod it was proposed to send a hearty vote of thanks to Mr. George J. Nicholls for presiding at the annual festival dinner, and Mr. Nicholls was elected a Vice-President of the Fund.

Mr. Edward Sherwood was re-elected Hon. Treasurer, and the retiring members of Committee, Messrs. D. Ingamells, R. B. Leech, J. F. McLeod, A. W. Metcalfe, T. Pateman, D. Swain, G. F. Tinley and John Wort, were all re-elected, and Mr. W. G. Penton, Warren House Gardens, Kingston Hill, Surrey, was elected to the vacancy caused by the death of Mr. G. Reynolds. The retiring Auditor, Mr. Peter R. Barr, was re-elected, and thanked, for his services.

On the motion of the Chairman, Mr. A. C. Bartlett was re-elected Secretary of the Fund. Mr. Ingamells stated that Mr. Bartlett had carried out his duties to the satisfaction of himself and the Committee, and he had much pleasure in proposing his re-election. The motion was seconded by Mr. McLeod and carried unanimously. The next business of the meeting was the election of orphans, and there being no necessity for a poll, three candidates, approved by the Committee, were elected by resolution. They were Barbara Malcolm Macnaughton, aged eight months, daughter of Malcolm MacNaughton, late gardener to the Earl of Mansfield, Scone Palace, Perth, who died on March 1, 1926; Peggy Ruth Vert, aged ten years and two months, daughter of Frederick John Vert, late nursery foreman to Messrs. James Vert and Sons, Saffron Walden, and Peter Charles Vert, aged seven years and one month, brother of the last.

The Chairman stated that he had a distressing case brought to his notice that morning; a gardener's two young children who had been deprived of both parents on the same day. The father was Mr. G. F. Waller, gardener at The Syen, Hayling Island, Havant, Hampshire; both Mr. Waller and his wife died on February 8, the day after Mr. Waller's father was buried. The two children are aged sixteen months and four-and-a-half years, respectively.

Mr. Leech proposed that "this Annual General Meeting, having heard the available particulars concerning Dorothy Eileen Waller and George Waller, orphan children of the late Mr. G. F. Waller, lately head gardener to The Syen, Hayling Island, Havant, Hampshire, do hereby authorise the Executive Committee to deal with applications concerning the children as they may see fit." The motion was seconded by Mr. C. H. Curtis and carried unanimously.

The Chairman stated that if the children were eligible for the benefits of the Fund the Committee would do the utmost it could to help them.

A vote of thanks to the Chairman, proposed by Mr. Barr, brought the proceedings to a close.

WATFORD HORTICULTURAL.

The first meeting of the Watford Horticultural Society since its enlargement was held at the Council Chamber on Monday, January 31. Mr. Armand Blackley (Chairman of the Bushey, Bushey Heath and District Horticultural Society) presided.

Mr. W. E. Cheeseman (Hon. Secretary) said that the present meeting was the outcome of a meeting held in November last, when a committee was elected to formulate an enlarged society. That committee met on November 19 and December 4, and, as a result, a sub-committee formulated plans for an enlarged society. Then the question of finance arose. He was glad to say that in that direction they had met with a fair amount of success; the *Watford Observer* had offered a silver challenge cup and also a replica to be won each year; also, through the good offices of Mr. F. E. Steward, Mr. Pierpont Morgan had offered a donation of £25 and a challenge cup worth £20; Colonel V. Lane, of Berkhamsted, had offered a cup worth £20 and a silver and a bronze medal. They had also received a letter from Miss E. E. R. Bradford, wishing the Society success, and enclosing a cheque for two guineas, which she hoped to double as a regular subscription.

Lord Clarendon, who had intimated his willingness to remain as President, was unanimously elected to that office.

Mr. W. E. Cheeseman was elected Hon. Secretary, and Mr. Fowler, Hon. Treasurer, after Mr. E. S. Theobald, who has held that position since 1911, had intimated his desire to retire.

It was decided to have a committee of twenty-five with power to co-opt. It was decided to ask the Borough Treasurer to become Hon. Auditor.

The Hon. Secretary read the appeal proposed to be circulated, and it was approved. The appeal asks for a sum of £1,000 for a prize list, expenses, etc.

It was decided to recommend the committee to hold a show in September of this year, and to leave it to the committee to decide whether a summer outdoor show or an autumn indoor show should be held.

At a subsequent meeting of the committee it was decided to hold a show in Cassiobury Park, on Tuesday and Wednesday, July 26 and 27.

ASSOCIATION OF ECONOMIC BIOLOGISTS.

The annual general meeting of this Association was held at the Imperial College of Science on January 28. After the business of the meeting was concluded the following demonstrations and exhibits of biological interest were shown :—Insects intercepted in miscellaneous imports, by Mr. J. C. Fryer ; Intermediates in the Bean Aphis, by Dr. J. Davidson ; Long-horn beetles, pin-hole borers, powder-dust beetles and furniture beetles, by The Forest Products Research Laboratory ; An unusual form of parasitism of an Anthomyid Fly, by Dr. K. M. Smith ; A specimen of Potato tubers arising on true roots, and specimens of the progeny from such root tubers, by Mr. W. A. Roach ; Cochineal insects and plants, Camphor wood and products, Lac and lac insects, from the Royal Botanic Gardens, Kew ; the physiology and genetics of Smut-Fungi, by Mr. S. Dickinson ; infection of immune varieties of Potatos by Synchytrium endobioticum, by Miss M. D. Glynne ; Some cultures of Armillaria mellea, by Mr. K. St. G. Cartwright ; Damage done by Collembola, by Dr. A. D. Imms and Mr. W. M. Davies ; Cultures of Tropical Fungi, by the Imperial Bureau of Mycology ; and Pyrethrum grown in England, by Mr. R. Stenton.

GLASGOW AND WEST OF SCOTLAND.

Mr. Joseph Dobson presided over a largely attended meeting of the Glasgow and West of Scotland Horticultural Society on Wednesday, the 9th inst., when Mr. John Highgate, Dankeith, Kilmarnock, delivered a lecture on " Herbaceous Plants," Mr. Highgate dealt with his subject in a comprehensive and able manner.

Obituary.

John Horton.—At the advanced age of eighty-three years, Mr. John Horton, of Woodend, Cuckney, passed away on Sunday, February 6. Mr. Horton was employed for many years on the Duke of Portland's estate at Welbeck, where he held the position of outside foreman until in 1887, on the death of Mr. Carr, he was appointed gardener. He retired in 1897 and went to live at Woodend. He will be remembered by many gardeners who obtained part of their experience at Welbeck, and these, in addition to many friends, will deeply regret the loss his family of five daughters has sustained.

Dr. Müller-Thurgau.—We regret to learn of the death, at the age of seventy-seven, on the 18th January, of Dr. Müller-Thurgau, the Director for many years of the German-Swiss Experimental Station at Wädenswil, in Switzerland. The institution was created in 1890, and served also as a college for the study of fruit and vine-growing and gardening, In 1925, Dr. Müller-Thurgau retired from active Direction of the Station, but retained his interest in it and acted still as " Working Director." He retained all his faculties to the last, and, as his father had lived to a great age, Dr. Müller-Thurgau's sudden death came as a great shock to his many friends and to the students, both past and present, who had passed through his hands.

Mrs. Francis Robinson.—On the 1st inst., there passed away at " Arnside," Prestwich Park, Manchester, after a short illness, Mrs. Robinson, wife of Mr. Francis Robinson, senior partner of Messrs. Dickson and Robinson, of that city. A lady of happy disposition, full of vigour despite advancing years, one whose cheerful presence was always a help and welcomed, she will be greviously missed. The interment took place at Prestwich Parish Church on the 4th. Much sympathy is felt for Mr. Robinson who, owing to indisposition from which he is just recovering, was unable to attend the funeral. Four of the firm's heads of departments paid their last respect to this lady, whom everyone held in great regard. Many beautiful floral tributes were sent.

ANSWERS TO CORRESPONDENTS.

Bell-bine in an Allotment.—*H. H. W.* We are afraid that trenching the ground would not rid you of this troublesome weed, but if, when you trench, you took care to remove every portion of the curled underground stems, you would do much towards clearing the land of this weed, every portion of which seems to grow. Another way is to exhaust the vitality of the plant by constantly hoeing it off as it appears through the surface. This, of course, is a long and tedious method of getting rid of the plant.

Cats in a Garden.—*J. S.* It is an old problem how to keep cats out of gardens, and one that has never been solved. You could do something to make access to the garden more difficult by placing tall netting along the fences.

Celery Diseased.—*G. H.* We cannot tell from the portion of Celery sent what is the cause of the trouble. If you will send us a plant with the leaves and roots attached, we will do our best to identify the disease.

Management of Winter-flowering Begonias.—*S. T. B.* These Begonias require very careful management during their resting period, and should be grown in a temperature of about 55°. They should be stood on a bench near to the roof-glass, and it is an advantage if the bench is a solid one covered with ashes, or similar moisture-holding material, as this greatly helps to retain the foliage on the plants until they commence to develop fresh growth from their bases. The plants should never be dried off ; at the same time, water should be afforded the roots very carefully, giving just sufficient moisture to retain the foliage in a healthy condition, and this will be greatly helped by spraying between the pots, so that moist conditions are maintained on the stage on which they are standing. When the plants commence to make fresh growth from the base they may be afforded more water. The young growths should be secured as cuttings when they are three or four inches long. The best single varieties include Optima, Emita, Exquisite, Fascination, Mrs. Heal, Orange King, Her Majesty and Clibrans' Red ; good double- and semi-double-flowered varieties are Pink Perfection, Altrincham Pink, Emily Clibran, Clibran's Pink, Flambeau, Scarlet Beauty, Eclipse and Sunrise.

Names of Fruits.—*S. J. R.* Apple Imperial. *G. T. F.* Apple New Bess Pool.

Names of Plants.—*D. L. D.* 1, Flowers faded, Begonia coccinea ; 2 B. Corbieille de Feu ; 3, B. Haageana.

Palm Leaf Dying.—*M. L.* The Palm leaf sent did not exhibit any signs of organic disease, but had every appearance of having suffered a severe check through either cold or inattention in watering. Too little or an excess of moisture at this season is harmful to Palms, and the danger from overwatering is greater if the plants are growing in a house where very little fire-heat is used. If, however, the atmosphere of the house was kept very warm and dry the plant would dry out quickly, and if not watered frequently the leaves would shrivel as in your case. Perhaps you were unable to obtain an adequate amount of fuel during the time of the coal strike to keep the house sufficiently warm.

Spraying Roses with Copper Sulphate.—*P. L.* Copper sulphate is usually applied to dormant plants at the rate of three-quarters-of-an-ounce to one gallon of water, but as Roses are already showing signs of growth you should apply the weaker solution, viz., one ounce to two gallons of water. Even then there is a risk of injury to the opening buds. You could use with safety potassium sulphide or liver of sulphur in the following proportions : Potassium sulphide, one ounce ; soft soap, three ounces ; water two gallons. The soft soap is not essential but renders the specific more adhesive.

Communications Received.— G. D.—W. H. M.—D. J.—H. N.—C. C. R.—W. A. W.—E. B.—D. M.—W. E. H. H.—W. K.— H. G. L.—N. E. B.—E. J. B.—J. P.—G. M

NEW HORTICULTURAL INVENTIONS.

These particulars of new patents, of interest to readers, have been selected from the Official Journal of Patents, and are published by special permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

1,195.—Lindsay, R.—Machines for harvesting root-crops. January 14.

653.—Orbell, H. J.—Flexible fences. January 10.

719.—Pettigrew, A. W.—Agricultural Device. January 10.

873.—Pond, S.—Crop-stacking Machines, etc. January 11.

786.—Provan, D.—Treatment of Bowling greens, etc. January 11.

Specifications Published.

263,963.—Howard, Ltd., J. and F., and Steinmetz, A. B. S.—Implements for lifting or digging Beet or other root crops.

263,591.—Nielsen, C. A.—Steering devices for cultivating implements.

263,595.—Owen, B. J.—Artificial drying of crops.

263,597.—Watson and Sons, Ltd., H., and Watson, E.—Electrically-driven lawn-mowers.

263,635.—Harris, W. G.—Travelling greenhouses.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1s. each.

Abstract Published.

Chip Baskets. Patent No. 262,032.

A new pattern of " chip " Strawberry basket enables these receptacles to be nested in each other quite easily so that a good deal of space is saved in storage. The inventor is Mr. J. G. Pratt, of 250, Crownpoint Road, Glasgow. The basket is formed with sharp tapered corners, the side and end portions being formed from two scored strips which are interlaced with other lateral and longitudinal strips to form the body. A pivoted handle adapted to be turned down to rest on the bottom, is provided.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the Official Trade Marks Journal and is published by permission of the Controller of H.M. Stationery Office.

EVERSEAL.

473,228.—A preparation in powder or liquid form for protecting plant life against insect and other pests.—Everseal Products, Ltd., Newton Works, Goldsmith Street, London, W.C.2. January 19.

ANTIS.

474,695.—Disinfectants, germicides and vermin destroying preparations in class 2.—William Thomas, trading as H. S. Lovell and Co., 81, Rosebery Avenue, London, E.C.1. January 19.

CARDIAZOL BRAND.

475,657.—Chemical substances used for agricultural, horticultural, veterinary and sanitary purposes.—H. R. Napp, Limited, 3 and 4, Clements Inn, Kingsway, London, W.C.2. January 19.

CORMORANT.

472,803.—Decorticating machines, being agricultural machinery in class 7.—The firm trading as Kingston Industrial Works, 1, Darling Street, Kingston, Jamaica January 19.

THE
Gardeners' Chronicle
No. 2096.—*SATURDAY, FEBRUARY* 26, 1927.

CONTENTS.

Adonis gardens in Scripture 146
Alpine garden—
  Gentians 143
Besant, Mr. W. ... 140
Carnation, a wilt disease of the 150
Cigarette machines in London parks ... 140
Claes, M. Florent ... 141
Daffodils, importance of "strain" in commercial varieties of 145
Florists' flowers—
  Double Wallflower Early Wonder ... 149
  Sweet Peas ... 149
Flower garden—
  Kniphofia Uvaria var. Saundersii ... 141
Fruit garden, the market 150
Fruit register—
  Apple The Queen ... 151
  Pear Belle Julie ... 151
  Pear Charles Ernest 151
Fruit Survey of Scotland 139
"Gardeners' Chronicle" seventy - five years ago 141
Gardening, the humanising influence of ... 139
"Gladiolus Annual" 139
Herb shop, a 140
Honey crop, the Scottish 140
Horticultural wedding 139
Ideal Home exhibition 140
Indoor plants—
  Acokanthera spectabilis 148
  Jasminum primulinum 148
"Kew Bulletin" ... 140
Kew, notes from ... 147
King's Walden Bury flower show... ... 140
Lathyrus tuberosus ... 151
Market Drayton gardeners 141
McLeod, Mr. J. F., presentation to ... 141
Museum of Economic Botany at Reading 140
Obituary—
  Burvenich, Octave . 154
  Goodacre, Mrs. ... 154
  Jones, Henry ... 154
Orchid notes and gleanings—
  Calanthes at Nether Warden 148
Orchis praetermissa under cultivation ... 139
Plants new or noteworthy—
  Farrer's "Three - penny-bit" Rose 147
  Pinus montana var. Mughus 147
Primrose, pollenation of the 139
Societies—
  Birmingham and Midland Gardeners' 154
  Cardiff and District Gardeners' ... 154
  Kingston and Surbiton Chrysanthemum 154
  Reading and District Gardeners' ... 153
  Royal Caledonian Horticultural ... 154
  Royal Horticultural 152
  Royal Scottish Arboricultural ... 153
  United Horticultural Benefit and Provident 154
Trees and shrubs—
  Shrubs for large lawn beds ... 148
Trees to commemorate William Curtis ... 140
Trenching, deep ... 151
Tsuga, a new 140
Vegetable garden—
  A succession of Cauliflowers 151
Vineyard at Bury St. Edmunds, the old ... 140
Week's work, the ... 142

ILLUSTRATIONS.

Besant, Mr. W., portrait of 140
Gentiana Purdomii 143
Kniphofia Uvaria var. Saundersii 147
Narcissus Golden Spur 145; Telamonius plenus ... 144
Pinus montana var. Slavinii 146
Rose, the "Threepenny bit" 141
Wallflower Early Wonder 149

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 40.6°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 23, 10 a.m. Bar. 30.5. Temp. 46°. Weather, Fine.

The Primrose and its Pollenation.

Scientific "papers" recording original observations are generally so strenuous and so technical that though they often make profitable, they rarely make pleasurable reading. There are, however, occasional exceptions to this drab rule, and Mr. E. M. Marsden-Jones' paper in the *Journal* of the Linnean Society (vol. XLVII, 316, December 31, 1926) is one of them. Mr. Marsden-Jones has, as it were, trod the Primrose path of dalliance with a light foot and an observant eye. He has watched the Primroses by day and by night, and taken careful stock of the company they keep. Thus it is that Mr. Marsden-Jones is able to decide authoritatively between the controversialists who have long disputed the question of the pollenation of the Primrose. One school is all for the view that pollenation takes place by day; the other, that it occurs at night. The yellow colour—which, however, does not show up well by night, and the "ratheness" of the Primrose—flowering as it does in the spring— are urged in favour of the latter hypothesis. The observations recorded by Mr. Marsden-Jones seem to settle the dispute once for all. He finds that whereas during the day bees and other efficient pollenisers visit the flowers with sufficient pertinacity and address to cause them to set plenty of good seeded capsules, such fly-by-nights of the insect world as *do* visit the Primrose—and they are few—are rather marauders, a beetle or two and an earwig, Forficula auricularia, which has a fondness for the flavour of the stamens and stigmas. Incidentally, Mr. Marsden-Jones records interesting observations on the efficiency—hateful word—of the pollenising bees. It is pleasant to know that these effective visitors, though they make no considerable showing in numbers, get through their work with an activity and address outrivalling that of afternoon callers making their hasty rounds. Bombylius discolor for example, was seen to pay visits to twenty-four Primrose flowers in the course of three minutes. The bee began at a great rate, leaving in the first minute an everlasting record of his business on fourteen flowers; slowing down thereafter to a rate of four in the second, and recovering a little to six visits in his third minute. This record is all the more remarkable in view of the counter attractions in the form and colour of other flowers—which would have distracted any less intent on his work than was our Bombylius. Discriminating, too, are pollenising visitors, the same Bombylius refusing to call on two flowers, the anthers of which had been eaten by slugs. Not content with observations only, Mr. Marsden-Jones determined to clinch the matter by experiment. He so arranged matters that two lots of Primroses in an orchard—fifty each—were covered, the one from 6 o'clock in the morning till sundown, and the other from nightfall to 6 o'clock in the morning. The result was decisive. On the day-covered plants, not one big capsule ripened, and only five small ones with a few seeds in each. On the night-covered plants there were finally 241 large, and 102 small capsules; and so this interesting little problem has been resolved, and we may now be assured that only those insects that work whilst it is day take part in ensuring that year in, year out, Primroses shall blossom at the sides of our woods and on the banks of our fields. It would seem also that the Primroses without the insects, Bombylius and other of like kind, would remain almost, if not entirely, without issue, for as has been noted the day-covered plants failed almost completely to bear seed. Mr. Marsden-Jones has done more than solve a pretty little problem; he has shown how anyone with the leisure and a taste for careful observation can add to the pleasant knowledge of the plants of the country side; for surely the end of science is not only to advance knowledge, but also to add to the sum of human happiness, and in the seeking of such knowledge there is "sweet content."

The "Gladiolus Annual."—This is the title of the yearly publication of The British Gladiolus Society, one of the latest of the special societies devoted to a particular flower, and as a first issue the Society is to be heartily congratulated, for it is an excellent journal in every respect, and full of informative articles on the Gladiolus. The aims of the Society are to stimulate interest in and promote the cultivation and improvement of the Gladiolus; to publish reports of its activities and other items of interest to Gladiolus growers; to encourage the production and propagation of worthy, new varieties, and to hold a public exhibition annually. Last year the show was held at Burton, and that for 1927 will be held at Taunton, on August 10 and 11, in conjunction with the Taunton Deane Horticultural and Floricultural Society. A good deal of the history of the flower is given by Mr. James Kelway in a lengthy article entitled "The Gladiolus." He gives the origins of this various sections and the chief raisers, both in this country and on the continent, and refers in detail to the important work of Messrs. Kelway and Son, and especially of his namesake, James Kelway. Mr. A. J. Macself writes with his usual first-hand knowledge of the Gladiolus of the past and present, and gives good advice as to what should be done by the Society besides holding shows. The list of varieties which figured in the first prize exhibits will be valuable to those making a selection for planting, but probably the most useful of all the contributions is Mr. Amos' Flowering Table, showing the number of days from the time of planting until the first flower opened. Apparently the quickest to bloom was Orillon, in eighty days, and other precocious flowerers were Picton, eighty-eight days; Dr. Horsford, eighty-nine days, and Hermione ninety days; Vesuvius ninety-one days, Geminius, ninety-three days, and Modia, ninety-four days. Compared with these, Evelyn Kirtland was not in bloom under 141 days; and other tardy ones were, Chris, 140 days, Red Canna, 138 days, and Owl, 135 days. The Hon. Secretary of the Society is Mr. A. E. Amos, 10, Bergholt Road, Colchester.

Horticultural Wedding.—Mr. Frank Rogers Durham, C.B.E., M.C., Secretary of the Royal Horticultural Society, was married on the 16th inst. to Dorothy Jessie, only daughter of Madame Ellis Browne, of Calgary, Alberta. The wedding was solemnised at St. Anne's, Kew. The staff at Vincent Square made Mr. Durham a presentation of a Crown Derby Coffee Set, and the staff at Wisley, a China Bowl. We understand the honeymoon is being spent in Northern Italy. Our readers will join with us in offering Mr. Durham and his bride hearty congratulations.

The Humanising Influence of Gardening.—Mr. H. L. Cancellor, the Marlborough Street Magistrate, stated, before the members of the Publicity Club of London on the 14th inst., that a home had been established at Basingstoke, to which 313 boys, who had been in trouble, had been sent from London. The institution was started nine years ago by a local grower of fruits and vegetables. Of the boys, fifty-seven had gone into the army, four into the navy, forty-five had become gardeners, forty-six were in situations near Basingstoke and eight were on farms. All the boys had found employment. He said that gardening was an industry especially suited to London lads who had been tempted to steal, for it was so different to what they had been accustomed to do in their earlier boyhood. It took them into fresh surroundings, brought them into contact with older men, and had a most humanising influence. In view of the beneficial effect which gardening has been found to exert on youths, he had made enquiries whether something of the same sort might not be done for young women. At Biarritz, he said the French had a large garden colony to which they sent even very long-term women prisoners. The results obtained there were found to be absolutely wonderful.

Fruit Survey of Scotland.—In connection with the fruit survey which has been undertaken by the staffs of the three agricultural colleges in Scotland, Mr. Alex. D. Harrison, son of our coadjutor, Mr. A. T. Harrison, Culzean Castle Gardens, has been appointed assistant to Mr. Dudley Howells of the West of Scotland College.

Orchis praetermissa under Cultivation.—At a recent meeting of the Linnean Society, Dr. G. Claridge Druce exhibited the original specimens of Orchis praetermissa, Druce, together with an example which Mr. B. S. Ogle of Steeple Ashton succeeded in growing from seed and flowering, and also a seedling from the second generation which flowered this year in Oxfordshire—an unique example of a British Orchid being grown from seed for two generations. The progeny in essential features are identical with the grandparents. The species hybridises with O. maculata, O. fusca and O. incarnata. It is widely distributed through Britain and

Ireland, but in the north usually is represented by var. pulchella, Druce. O. praetermissa is found in France, Belgium and Holland. During the discussion, Mr. H. W. Pugsley suggested that Swedish plants of O. praetermissa were probably named O. incarnata. Dr. Druce considered this likely as it had now been recorded from France, Belgium, Holland and Denmark. Mr. A. J. Wilmott said that there is a note on St. Brody's specimen in the British Museum Herbarium, stating that he never collected or possessed a continental specimen. The name rutaceum, Swartz, used by British botanists should be replaced by ramosum, Aschers., as it had been shown that Swartz knew only B. Matricariae, Spreng.

A Herb Shop.—Under the management of Mrs. C. F. Leyel, the Society of Herbalists, Ltd., has revived an old industry by opening a shop at Culpeper House, Baker Street, W.1, for the sale of medicinal, culinary and cosmetic herbs.

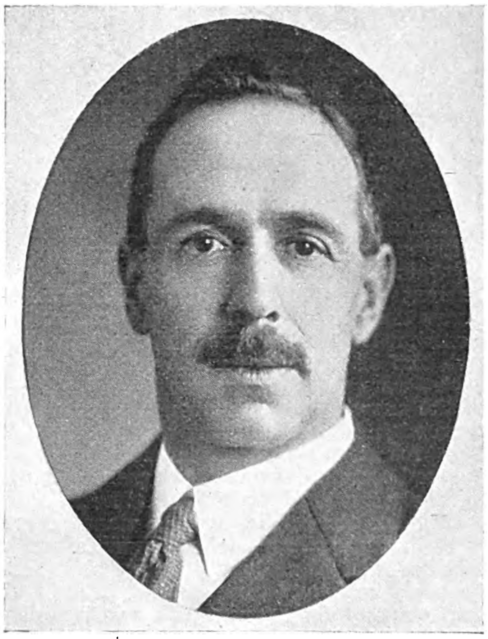
Trees to Commemorate William Curtis.—The Bermondsey authorities have planted trees in Crimacott Street, Bermondsey, for the purpose of commemorating William Curtis, the founder of *The Botanical Magazine*. Before moving to Lambeth Marsh—the address given in the early volumes of the *Bot. Mag.*—William Curtis held a plot of ground in Bermondsey, which he purchased, and where he cultivated his first collection of plants; Crimacott Street is considered to be the site of this garden. According to the late Dr. Botting Hemsley, in his "History of The Botanical Magazine" (largely reprinted from *The Gardeners' Chronicle*) which forms the introduction to the *Index to the Botanical Magazine*, published in 1906, Grange Road, Bermondsey, was the site of Curtis's first garden; possibly Crimacott Street of 1927 approximates to the Grange Road of about 1775. William Curtis was appointed Botanic Demonstrator to the Society of Apothecaries, at Chelsea, in 1773; soon after this date he became a public lecturer on botany and horticulture, and established his botanic garden in Bermondsey for the purpose of enabling him "to give a practical turn to his teaching."

Cigarette Machines in London Parks.—We are glad to learn that the London County Council Parks Committee has refused to grant a licence to provide automatic machines for the sale of cigarettes in their parks and open spaces. Already too much damage is done by smokers in the public parks, especially in dry weather, to say nothing of the litter created by the paper wrappers being thrown on the ground.

Ideal Home Exhibition.—One of the most pleasing features of the eleventh Ideal Home Exhibition, to be opened at Olympia, London, on March 1, will be the gardens arranged in the annexe by leading nurserymen and landscape gardeners. In other parts of the exhibition the art and craft of gardening will be demonstrated, notably in The Village, where the little stream, margined with flowers, will provide a scene of rural charm.

The "Kew Bulletin."—The larger part of the new issue of the *Bulletin of Miscellaneous Information* (Part 1, 1927) is occupied by an enumeration and descriptions of the Grasses of the Fiji Islands, while the "Flora of the Nearer East" (Part III) fills about eleven pages. The most interesting article is that dealing with the Afforestation of the Falkland Islands, with illustrations. Notwithstanding many failures and disappointments, the work of afforesting the Falkland Islands appears now to have reached a point whence a certain measure of success seems certain. It is of interest to note that Scots Pine and Sitka Spruce give promising results, that Phormium tenax has been established, Nothofagus antarctica is growing well, and Poplars have suckered freely and provided ready means of increase; that Gorse makes excellent shelter hedges, and that although raising various trees and shrubs from seeds is attended with success, the planting of imported seedlings and young plants is rarely successful. Mr. W. Taylor contributes an all-too-short note on the Prince of Monaco's wonderful garden, near Monte Carlo, and a few interesting short notes on other subjects are given in the concluding pages.

Mr. W. Besant.—On Thursday of last week, the Glasgow City Council confirmed the recommendation of its Parks Committee by appointing Mr. W. Besant successor to Mr. E. Matthews, as Director of its Parks, Botanic Gardens and Open Spaces. Mr. W. Besant comes of a good gardening stock, as his father was gardener to Lady Armitstead, at Castle Huntley, for thirty-five years, and he was born at Castle Huntley. His two brothers occupy important positions in the horticultural world, Mr. John W. Besant being in charge of the famous Glasnevin Botanic Gardens, Dublin, and Mr. James Besant, Superintendent of the Parks at Harrogate. After an apprenticeship at Errol Park, Perthshire, Mr. W. Besant gained experience as journeyman and foreman at the Marquis of Linlithgow's gardens at Hopetoun House; at the Earl of Stair's beautiful place at Castle Kennedy; and at Queen's Park, Glasgow. From this experience at Glasgow, Mr. Besant went to Kew, where he stayed two-and-a-half years, eventually becoming sub-foreman, before becoming Assistant Manager at the Tully Nursery, Kildare, Ireland. Two years later, he became gardener to Sir Harry Greer, at Curragh Grange, Kildare, a delightful Irish garden. In search of further knowledge and wider experience he obtained an appointment with Messrs. R. Wallace and Co., then of Colchester, in their landscape gardening department; this post entailed the supervision of works in various parts of the country over a period of several years. He then accepted the important position of gardener to Gerard C. Sellar, Esq., at Ardtornish, Argyllshire—one of the most famous and beautiful gardens in the Highlands of Scotland. Here he remained for six years, carrying out many alterations and extensions. Public service, however, proved an irresistible attraction, and so Mr. Besant's next position was that of Curator of Kelvingrove Park, under the Glasgow Corporation; two years later, in 1923, he was appointed Assistant Director of Parks and Botanic Gardens and now he becomes the Chief Officer, a position of great responsibility and importance, but one for which his energy and wide experience eminently fit him.



MR. W. BESANT.

Gardeners' Royal Benevolent Institution, Worcester and District Auxiliary.—This local branch of the Gardeners' Royal Benevolent Institution has forwarded the sum of £100 to the parent Institution as the result of last year's efforts. The thirty-second annual meeting of the subscribers was held on Saturday, January 15, at the Farmers' Club, Worcester, when the Rt. Hon. the Earl Beauchamp, K.G., was again elected President, Mr. John White, Rupert Villa, Lower Wick, Worcester, Hon. Treasurer, and Mr. Percy G. White, 51, Broad Street, Worcester, Hon. Secretary.

A New Tsuga.—Among the many plants sent to America from Yunnan, China, by Mr. J. F. Rock, is an unnamed species of Tsuga which forms a tree eighty feet or more in height with a trunk about five feet in diameter. It has spreading branches and grows at an altitude of 10,000 feet on the eastern slopes of the Likiang Snow Range, in dense forests where there is a heavy rainfall. The needles are dark green, and the rather large, ovoid cones pale brown. Mr. Rock considers this the finest of all the Tsugas.

King's Walden Bury Flower Show.—The King's Walden Bury Horticultural Society will hold its next exhibition on Wednesday, August 3, in King's Walden Bury Park. Last year the successful local exhibition and gardens were visited by no fewer than 2,500 people. The Secretaries are Mr. A. J. Hartless, The Gardens, King's Walden Bury, Hitchin, and Mr. W. G. P. Clark, York Road, Hitchin.

Captain Smith's Botanical Library and Herbarium.—Some twenty years ago the valuable Botanical Library and Herbarium of Captain John Donnel Smith were presented to the Smithsonian Institution, Washington, U.S.A., but have only recently been deposited with the Institution. The library comprises some 1,600 beautifully bound volumes, and the plant collection embraces more than 100,000 specimens. Some of the books are very rare, and many are descriptive of tropical America, especially of Central America. The herbarium was, at the time it was presented, the finest in existence in Central America, and includes many type forms. Besides American plants, it includes many from China, Tibet, Central Asia, India, Australia, Africa, and other parts of the globe.

Museum of Economic Botany at Reading.—The Museum of Economic Botany referred to in our appreciation of Dr. J. B. Hurry (p. 108) was presented to the Reading Town Council and not to the Reading University. In asking us to correct this clerical error, Dr. Hurry writes: "I have been for many years a great admirer of your journal and appreciate the immense services you are rendering to horticulturists."

Scottish Honey Crop.—At the annual meeting of the Scottish Bee-keepers Association, held at Perth, reports from the various district committees showed that the honey crop during the past season was up to the average. Crops of 80lb, 100lb and 150lb were common, and one "take" consisted of 232lb of section and extracted honey.

The Old Vineyard at Bury St. Edmunds.—Some interesting reminiscences of St. Peter's Vineyard, Bury St. Edmunds, were published in the *Suffolk Free Press* of February 3. It appears that the old vineyard has almost entirely disappeared, and offices and shops now occupy a large part of the site. There still remains a large glasshouse which was formerly included in the vineyard. An account of this old vineyard was given in *Gard. Chron.*, December 22, 1866, where it is stated that the vines were planted out-of-doors and under the protection of a tall wall were grown as cordons near the ground or tied up to stakes a yard high, with standards in more open positions. The "standards averaged twenty compact bunches apiece and a more beautiful sight could seldom be seen in England than some hundreds of them heavily weighted with their luscious burdens. A gentleman who had seen large tracts of Swiss and French vineyards this season stated that he saw nothing that exceeded the health and fruitfulness of those at Bury." We learn that the former owner, Mr. John Darkin, still lives in Southgate Street, Bury St. Edmunds, and a tablet on the wall bears the inscription

"John Darkin, 1849," whilst in the vinery is another mural tablet inscribed "W. D. 1832." An old house still exists, in the cellars of which are the remains of some of the wine presses used in connection with the vineyard. About a ton of Grapes were harvested in 1869, and some of the bunches were of very large size; one, weighing 2lb 11oz., of the Royal Muscadine variety, was forwarded to the Editor of *The Gardeners' Chronicle* by Mr. Darkin.

Presentation to Mr. J. F. McLeod.—At the annual dinner of the Wickford and District Branch of the Essex County Farmers' Union, held at Wickford on the 15th inst., Mr. J. F. McLeod (formerly of Dover House Gardens, Roehampton) was presented with a silver salver, and Miss McLeod with a clock and volume of Wagner. Mr. McLeod was Chairman of the branch for some years, but resigned the office on his removal to Ware. The salver was inscribed "Presented to James Findlay McLeod, Esq., C.C., by the members of the Wickford and District Branch of the Essex County Farmers' Union as a token of their appreciation of his services as their Chairman, and of the kindly interest he has always shown in their general welfare." Mr. Gill, in making the presentation, said that in him (Mr. McLeod) they had enjoyed as good a Chairman as any branch could possibly have, and they counted it a great pleasure to have had Miss F. McLeod at their dinners for so many years, when she kindly gave her services as accompanist. He had never had an easier task than when collecting the money for that presentation; everybody gave and was delighted to do so. Mr. McLeod, in acknowledging the gift, said it was twelve years since he came among them, and three years since they asked him to become Chairman of the branch. He said he hoped he was not severing his connection with those present, whom he would always be pleased to see.

M. Florent Claes.—We are glad to learn that M. Florent Claes, the well-known Orchid grower of Brussels, has been promoted to the rank of Officier de l'Ordre de la Couronne. M. Claes suffered considerably in consequence of the German occupation of Belgium during the war, but he took formerly a prominent place in Belgian horticulture, and created some very beautiful gardens. He visited Colombia in the last quarter of the nineteenth century in search of Orchids for the famous firm of Linden, and several Orchids bear his name.

Market Drayton Gardeners.—Gardeners in the Market Drayton district—which embraces portions of Shropshire, Staffordshire and Cheshire—have come together more during the past few months than ever before. The chief reason for this has been a proposal, brought up by the local Tradesmens' Association, to form a horticultural section of the important agricultural show. This idea has not reached fruition in time for the 1927 show, but there seems little doubt that it will mature next year. A prominent member of the Market Drayton Tradesmens' Association, Mr. G. B. Hubank, suggested that the gardeners of the district, although not belonging to any association, should join together at a little social function. The idea grew, and on Thursday, February 17, a large number of gardeners from a wide area dined at the Corbett Arms Hotel, Market Drayton. It was a coincidence that the Chairman, Mr. Mills, gardener at Shavington Hall, should be the 1926 winner of *The Gardeners' Chronicle* Medal, and that Mr. Catt, the 1925 winner, was also present. "Success to Horticulture" was proposed by Mr. G. B. Hubank, and responded to by Mr. Birch, a well-known member of the Shrewsbury Show and a highly-respected gardener. Mr. Birch considered the time was approaching when the good, all-round, practical gardener would be recognised as a very valuable person and as important as any high-class mechanic. They had to live for their work if they wished to be successful gardeners, and by doing so they gained the confidence of their employers.

Appointments for the Ensuing Week.—Monday, February 28: Harrogate and District Horticultural Association's meeting. Tuesday, March 1: Bolton Horticultural Society's lecture; Royal Caledonian Horticultural Society's meeting. Wednesday, March 2: Nottingham and Notts. Chrysanthemum Society's meeting. Thursday, March 3: Manchester and North of England Orchid Society's meeting; Western Commercial Horticultural Society's show (two days). Friday, March 4: Post Office Savings-Bank Horticultural Society's lecture; Accrington and District Chrysanthemum Society's meeting; Dundee Horticultural Society's lecture. Saturday, March 5: Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Acacia dealbata.*—Of all hardy winter-blooming plants with which I am acquainted, this is by far the best. In order to give some idea of its beauty, I may state that it is handsomer, both in flower and foliage, than the well-known Acacia armata. The plant here proves that in the neighbourhood of London, at least, it is perfectly hardy; it has been planted twenty years, and now it covers eighteen square feet of wall; it is literally one mass of bloom from top to bottom, and is so conspicuous that it may be seen a quarter of a mile off. I usually take the precaution to nail it close to the wall in autumn— and in case of a continuance of more than 15° of frost, a woollen net is thrown over it; its blooming this year is not an exception, for it has only missed flowering two years since it was planted, and these mishaps were occasioned by the young shoots being cut back by the frost. Every one knows what soil Acacias require; but remember, ground for them must be thoroughly drained. *J. Rust, gardener to W. Everett, Esq., Enfield. Gard. Chron., February 28, 1852.*

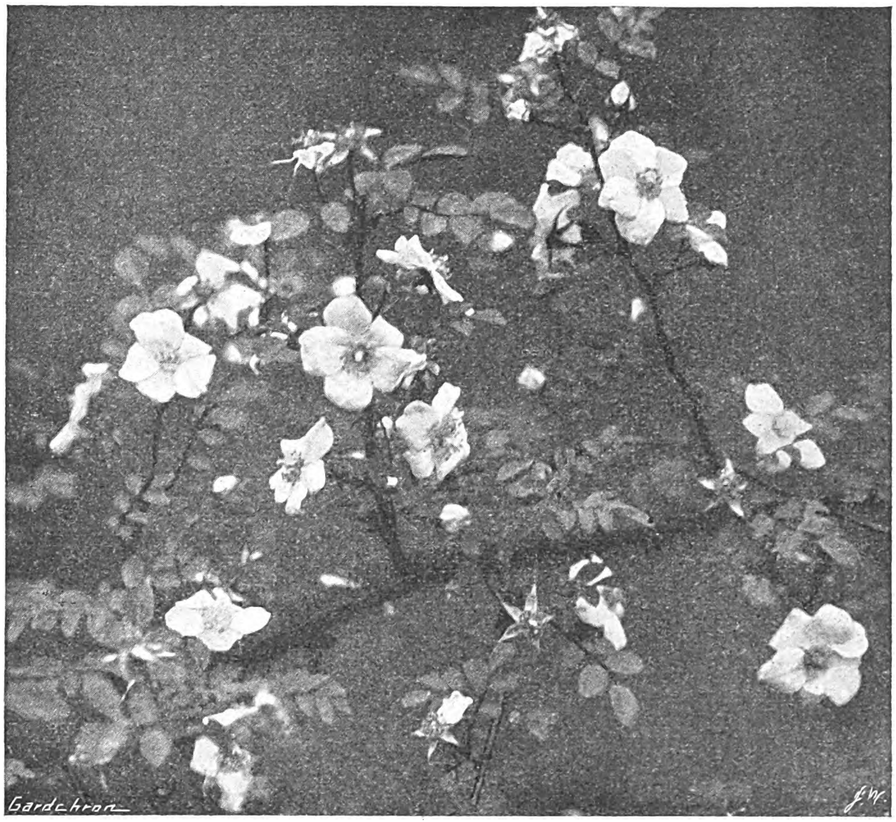


FIG. 70.—THE "THREEPENNY-BIT" ROSE (FARRER 774).

(see p. 147).

Publications Received.—*The Cultivation of Citrus Fruits*, by H. Harold Hume, Price 21/-. —*A Treatise on Viticulture*, by A. I. Perold; price 25/-. Both published by Macmillan and Co., Ltd., St. Martin's Street, W.C.—*A Garden in Wales*, by A. T. Johnson; Edward Arnold and Co., 41, Maddox Street, W.; price 16/- net.

FLOWER GARDEN.

KNIPHOFIA UVARIA VAR. SAUNDERSII.

The illustration reproduced in Fig. 75, showing a portion of the Kniphofia garden at Kew, serves to demonstrate the decorative value of some of the best species and varieties of Kniphofia when grown in generous masses. The fine bed in the foreground contains K. Uvaria var. Saundersii, by no means one of the newer varieties, but still one of the best for planting on a large scale, as it is a good grower and produces its scarlet and yellow flowers in wonderful profusion over a long period. This particular bed was replanted during March of 1926—March being the best time for replanting when this operation becomes necessary. The old clumps were pulled to pieces and strong, single growths with roots attached were selected for replanting; they were planted in groups of threes and fours, about six inches apart, the groups being two and-a-half feet apart all over the bed.

For all the strong-growing species and varieties I am certain this is the correct method of cultivation, for if they are divided in the ordinary way and planted back as large clumps, sooner or later the old rootstocks decay, disease sets in and may spread quickly right through a bed, or even through the whole collection.

Kniphofias like to be high and dry during the winter, and our damp winter conditions render it very difficult to keep some of the species in the open safely all the year round; in the south some of the more tender species will withstand our winters if planted at the foot of a warm wall. Although dry conditions at the roots are essential during winter, Kniphofias enjoy copious supplies of water during the growing season.

Kniphofias are often known as Tritomas in gardens; they are especially valuable because of their late-flowering and constitute some of the most attractive subjects in the garden when winter is approaching. The imposing spikes of flowers are mostly of scarlet colour, but there are a few sorts of yellow and lemon-yellow shades. *J. Coutts, Kew.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Phaio-Calanthes.—The members of this race of bi-generic hybrids are semi-deciduous, and do not need such a decided rest as Calanthes. As the plants pass the flowering stage they should be placed in a dry position in a Cattleya-house temperature, and only receive sufficient water to maintain the growth in a plump condition. After a few weeks rest the plants will commence to grow again, when any that need fresh rooting-material may receive attention.

Management of the Houses.—As the days lengthen, the cold may strengthen, and we may also expect bright, sunny days, which will be of great benefit to the various inmates of the different houses. The amount of sunshine will certainly increase appreciably daily, and with the bright spells after cold nights, so often experienced at this season of the year, every attention must be given to the different departments that there is no drastic fluctuation in the temperature or atmospheric humidity. The plants should not be hastened into growth unduly by an excess of artificial warmth and moisture, but allowed to develop according to their natural seasons. During the periods referred to, it is advisable, when it is necessary, to use more fire-heat to maintain the temperatures, to be a little more liberal as regards the damping of floors, stages and paths to counteract a dry, stuffy atmosphere. In ventilating the houses every care must be taken to guard against admitting cold draughts, as these are highly injurious to the plants.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Cucumbers.—Where a suitable temperature can be provided, sow Cucumber seeds singly in small pots. The soil should consist of equal parts of good loam and Oak or Beech leaf-mould. The seeds will germinate quickly if the pots are plunged in a hot-bed, or over bottom-heat of about 80°. So soon as the young plants commence to grow, place them near to the roof-glass to keep them sturdy. Maintain a humid atmosphere in the house, and a minimum temperature of 65°. Prepare soil composed of two parts fibrous loam, one part leaf-mould, one part old Mushroom-bed manure, and a little mortar rubble. The compost should be placed in mounds on a hot-bed or over bottom-heat, in readiness for setting out the young plants so soon as they are sufficiently strong. Take full advantage of sun heat, but open the ventilators slightly when the temperature rises above 83°, and close them again early in the day to conserve as much natural warmth as possible.

Turnips.—To obtain roots early, sow seeds either in cold frames or on a very gentle hot-bed. Choose a quick-growing variety, also one with a small top, such as White Gem or Early White Milan. Sow the seeds thinly in rows made about one foot apart, and thin the seedlings at an early stage. The soil should be similar to that recommended for Lettuces in a previous calendar. Ventilate the frame freely on all favourable occasions.

Early Celery.—Where Celery is required very early in the season, a small sowing should be made now. Sow the seeds thinly in boxes or pans; water the soil carefully and germinate the seeds in a temperature of about 55°. So soon as the seedlings appear, place them near to the glass, and never allow them to suffer a check at any time.

Seed Beds.—Advantage should be taken of all favourable opportunities, when the ground is sufficiently dry, to fork over the plots which are intended for sowing Onions, Parsnips, Carrots and other crops. If this is done now, the soil will have settled by the time it is required to sow the various crops. It also allows the weather to act on the rough lumps of soil and assists generally in obtaining a good tilth. Should soil pests have previously been troublesome a proved soil fumigant may be applied at this time and forked into the ground.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Perpetual Carnations.—Plants that were raised from cuttings in November last should now be ready for transferring to larger receptacles. Pots three-and-a-half inches in diameter are a suitable size at this stage of growth. The compost may consist chiefly of loam, to which may be added some old material from a spent Mushroom-bed (after being passed through a coarse sieve), bone-meal and silver sand. The young plants should be potted fairly firmly and grown on in a cool temperature of about 50°; this amount of warmth is suitable in dull, sunless weather, but the temperature may be allowed to rise during sunny days and the extra sun warmth will prove beneficial to the plants. Watering needs to be done carefully as Carnations resent stagnant conditions at the roots. Air should be admitted to the house freely whenever the outside conditions are favourable, and unless severe frost is likely to occur at night, the top ventilators should never be tightly closed. At this potting choose varieties best suited to the requirements of the establishment, for while certain sorts of Carnations will thrive in some localities they are a failure in others. This is probably due to a difference in atmospheric conditions, either the house not suiting some or the neighbourhood being unfavourable. Continue to insert cuttings of the varieties most needed as they become obtainable; they will soon develop roots if treated as previously advised.

Pelargoniums.—Old plants of Pelargoniums that were cut back last October and shifted into smaller receptacles than those in which they were grown last year, may now be transferred to their flowering pots. These plants will thrive in quite ordinary soil, but much leaf-mould is not to be recommended for the final potting. Rather use a small amount of old Mushroom-bed manure and sand to render the compost porous. When the plants are established in the new soil all growths should then be stopped to promote a bushy plant. Rooted cuttings that have been placed singly in small pots and have had their tops removed to favour a stocky growth, may be transferred to their flowering pots as they become ready. Grow the plants near the roof-glass in a moderately cool house.

General Remarks.—Continue to introduce bulbs and flowering shrubs into a warm house in sufficient quantities to meet the demand of the establishment, always bearing in mind that fresh flowers will last much longer than those that have been open for some time before they are used. Bulbs and shrubs that have passed out of flower should be stood in a cool house; the bulbs may be planted out later in grass for naturalising.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Strawberries.—To cultivate these plants satisfactorily they should not be grown in loose soil. They delight in a firm rooting-medium from the time they are planted, and for this reason the ground intended for their reception should be well-trenched and manured liberally some weeks previous to setting out the runners, to allow time for it to become consolidated for planting. When trenching the land break up the bottom spit to ensure water draining away freely in very wet weather. Mix the manure thoroughly with the soil as the work of trenching proceeds. Healthy, young plants usually produce the best results. Plants which have been forced, duly hardened, and subsequently planted in suitably prepared soil, will yield very heavy crops of large fruits the following year. Those who intend to make a bed from forced plants when the time arrives should have the site prepared in readiness for their reception.

Established Beds.—Beds in bearing should be kept free from weeds, and if not mulched, the surface soil should be pricked up lightly with a fork and enriched with a liberal dressing of well-decomposed manure. Failing this, apply a good dressing of soot, bone-meal, or artificial manure.

Quince and Medlar.—The pruning of these fruits is very similar to that adopted for Apples. The heads should be thinned more or less each year, crowded heads relieved of some of their ill-placed branches, and old, useless sprays removed so that light and air may reach the interior of the tree. Select a warm, sunny position for these fruits and a sweet, rather moist soil. The fruits of both kinds are usually in demand. Both the Apple and Pear-shaped Quinces are dependable varieties, and the Nottingham is one of the best Medlars.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Iris unguicularis (syn. stylosa).—It is surprising that this beautiful Iris is not more generally cultivated, for it has a long flowering season, and produces a large number of flowers which are deliciously fragrant. One often hears complaints that this Iris transplants badly, which is quite true if it is done at the wrong time, but if this operation is performed about the middle of March it presents no difficulty. As this plant is a native of Algeria it requires a hot, sunny situation and poor, stony ground, for if given a rich root-run it develops too much foliage at the expense of flowering. In situations where it grows too luxuriantly the leaves should be shortened about half during the summer; this treatment has no injurious effect on the plants and induces freedom of flowering. As this Iris flowers throughout the winter and early spring, some protection is necessary for the spikes, even during times of slight frost. It is important that the flowers be pulled out at the base, and not cut, as what appears to be the flower stem is really the long, flower tube; it is also best to pick them in bud, as the open flowers are very fragile and easily damaged. In cold districts this Iris is certainly worth the shelter of a cold frame. There are several varieties, including a white one, but although all are beautiful, I consider the type plant is as useful as any where large quantities of cut flowers are required.

Annuals in the Wild Garden.—Hardy annuals may often be used in a very effective manner in fairly open spaces in the less-dressed portion of the garden, and especially on the fringe of the dressed and wilder parts. Where ground has been cleared of trees or shrubs it is a good plan to sow at least a portion of the site with suitable hardy annuals. Some of the annual Poppies are excellent for this purpose, including the many single and double varieties of Papaver somniferum, the Opium Poppy, also the many varieties, including the Shirley strain, of Papaver Rhoeas, our common field Poppy; P. pavonium and P. umbrosum are also very suitable for the purpose. Callistephus chinensis, the common China Aster, is very effective in such places during the autumn. Cornflowers, Chrysanthemum carinatum, Calendula officinalis, Godetias and many other subjects will readily suggest themselves. Employ the larger-growing plants for producing big effects. Where there is space, this method of growing annuals is capable of being a very pleasing phase of gardening.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Early Permanent Vines.—Stopping, tying, and regulating the shoots and removing superfluous bunches, leaving one only on each shoot, will now call for daily attention. Having maintained a low temperature in dull, sunless weather, especially at night, the grower should now increase the temperature of the house gradually until a minimum of 60° to 65° is reached, with 10° higher by day, by the time the first flowers open. Reduce the amount of atmospheric moisture slightly, as Grapes, set best in a brisk temperature with the air in circulation. Successional vineries containing a mixed collection of varieties may be syringed with warm water two or three times daily, according to the state of the weather. Let the temperature of the house be 55° at night and 60° by day until the bunches are prominent, then discontinue direct syringing, but damp the floors and other available spaces and allow the temperature to rise considerably on sunny days to draw out the bunches.

Strawberries.—The earliest plants will be in various stages of development, some throwing up their flower stems and others swelling their fruits. Remove the plants as they come into flower and place them widely apart in the lightest part of the house where fresh, warm air can circulate freely amongst them. A number of the smaller blooms may be pinched off before they open with advantage to the remainder. When the berries have set, complete the thinning to six or eight fruits on each plant. Syringe the latter well and remove them to shelves close to the roof-glass in a house having a temperature of 60° to 65°; the temperature for those in bloom should be kept as near 55° as possible. Pollenate the blooms by means of a rabbit's tail at midday. Feed the roots freely until the berries show signs of developing colour, then use only clear water, reducing the amount of moisture gradually when the berries are well coloured. If the plants are placed in a warm, dry house for a day or two when the berries are ripe the flavour will be improved.

Successional Plants.—Fresh batches of Strawberries should be placed in light pits according to the demand of the establishment. Stand them well up to the glass, and keep the temperature of 45° to 50° on mild nights and a few degrees higher by day. On no account should the growth of the plants be hurried. Admit air freely when the weather is favourable and remove the most promising plants to fill up the shelves in the houses as they become vacant.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Pricking Out Seedlings.—This important work will now occupy considerable time, and must be attended to before the seedlings become crowded in the seed-pans. If the necessary number of boxes is prepared in advance and filled with compost to suit the various plants, the work will be more expeditiously carried out. A careful calculation of the numbers of each subject likely to be needed will be useful in reducing the work to actual requirements, always allowing a margin for possible losses. The aim of the cultivator should be to get the maximum number of plants into each box or pan, while giving them sufficient space to develop. Very small seedlings, such as Begonias, may be pricked out about one inch apart at the first operation, and when they have increased in size so as to be almost touching each other, transferred to other boxes and given more room. Seedlings of Lobelia need not be pricked out singly unless the numbers required are very numerous, but do well if small tufts containing three or four seedlings are pricked off together. These may be divided later, and their numbers doubled at the second operation.

Dahlia Tubers.—Where additional stock is required, Dahlia tubers will be best started in the propagating house, in a fairly high temperature, in order to induce them to start into growth early. So soon as the young shoots are from three to four inches long they may be detached and inserted as cuttings. Where a large stock of tubers of such popular bedding varieties as Coltness Gem and Dunecht Yellow has been retained from last season, it will be sufficient if the tubers are now placed in boxes of sand and leaf-mould and set in any house from which frost can be excluded. These tubers will start into growth naturally as the season advances, and may be divided and repotted in preparation for planting out in June. Old plants treated in this manner are well adapted to filling large beds, and they will give a tremendous crop of flowers, far surpassing the younger plants raised annually from cuttings, although the latter make the best material for retaining the following winter.

Perpetual Carnations.—Cuttings of these Carnations, inserted last month, are now well-rooted and should be placed singly in thumb pots. A sandy loam passed through a half-inch sieve and heated to the same temperature as the house in which the plants are growing, should be used, and every care taken that the young plants do not receive a check while they are being potted. This work may be carried out by erecting a temporary bench and doing the work in the house in which the plants are growing, returning the newly-potted plants to the same site previously occupied, and ensuring them a growing temderature of 55° to 60°. So soon as it becomes evident that they have rooted in the new soil, and before there is any tendency of their becoming drawn, they should be removed to a cooler house, and afterwards grown on as hardily as possible. The labelling of a large collection of Carnations takes considerable time, but must be attended to, as few plants are less easily recognised from their foliage alone.

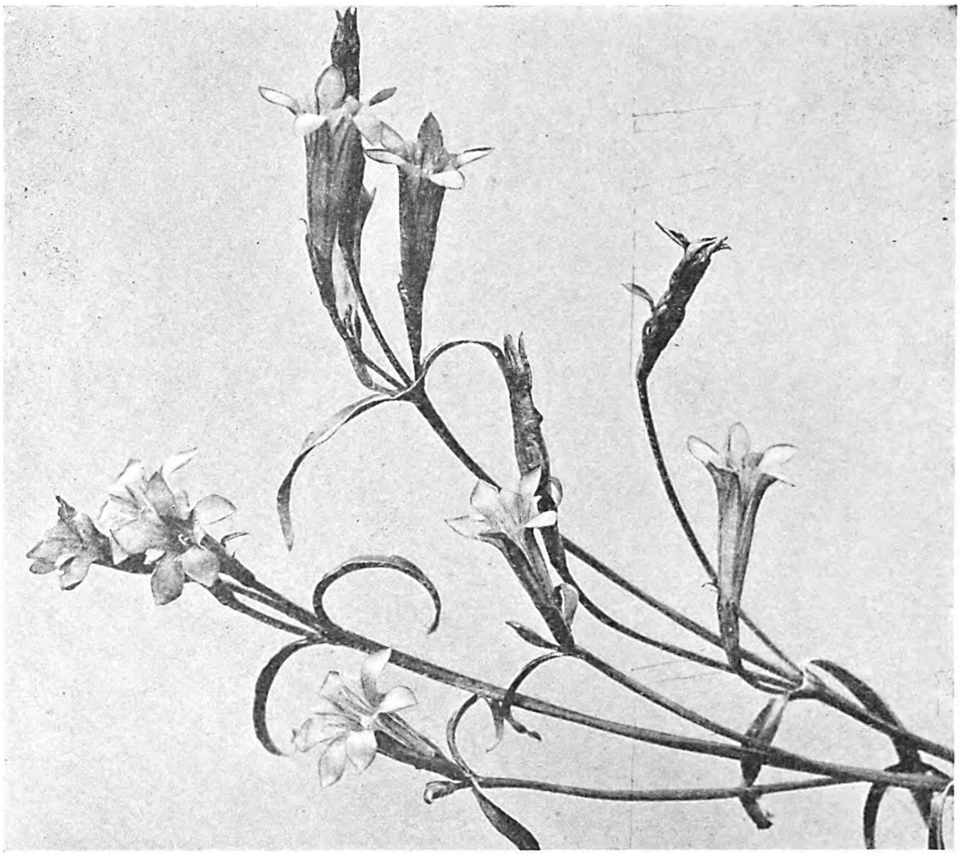


FIG. 71.—GENTIANA PURDOMII.

(see p. 144.)

ALPINE GARDEN.

GENTIANS.

From the tiny, turf-studding Gentians of the Alps, through many and various intermediate shapes and forms, to the stately spires of G. lutea, the genus Gentiana presents a fascinating study to the specialist of alpine flowers, and the popularity of the plant seems to be increasing by leaps and bounds, especially since the introduction of some notable Asiatic forms within recent years. They are, however, not all good and a timely warning may be of service to the inexperienced for G. Cruciata, G. tibetica, G. phlogifolia, G. Przewalskii and G. punctata are among those large, leafy and dingy-flowered species which are not worth garden room, except where a representative collection is desired.

The two outstanding members of recent Asiatic introductions are G. sino-ornata and G. Farreri, both so often and well described as to be well-known to those even who do not already possess them.

G. sino-ornata seems to have become quite at home already, and has shown us quite plainly what it requires in the way of successful culture, namely, plenty of leaf-mould and silver sand, and full sun. Given these conditions it thrives and multiplies and produces an autumn show of unequalled splendour. G. Farreri is not quite so easy, and for one garden where it is really happy, there are a dozen where it simply exists, and sometimes not even that for long. I know of one patch, planted in precisely similar conditions to G. sino-ornata, that is all that could be wished. It is growing not two miles from my garden, yet my plants, although treated likewise, just dwindled, and so far, the best success I have attained with this species has been by planting it in almost pure fibrous loam, where it is at least mildly contented, which is something, and a step in the right direction. It is readily increased from seeds, and so is G. sino-ornata, when it is possible to procure any, but this species flowers very late in the season, and my plants never set seeds. I think mine must be an especially late-flowering form, as up to December 1st, I had several plants still in bloom. Cuttings of G. Farreri root very easily, but they should be inserted in the autumn as there seems to be a surprising mortality among spring cuttings after they have been struck and potted, why, I do not know.

Almost all of the tiny, high alpine species answer best to scree treatment; they seem fairly indifferent whether the scree be composed of limestone, granite or sandstone, the main thing is that it be gritty enough and well-drained. Underground water is an advantage if it can conveniently be arranged, but I find the plants do perfectly well without it.

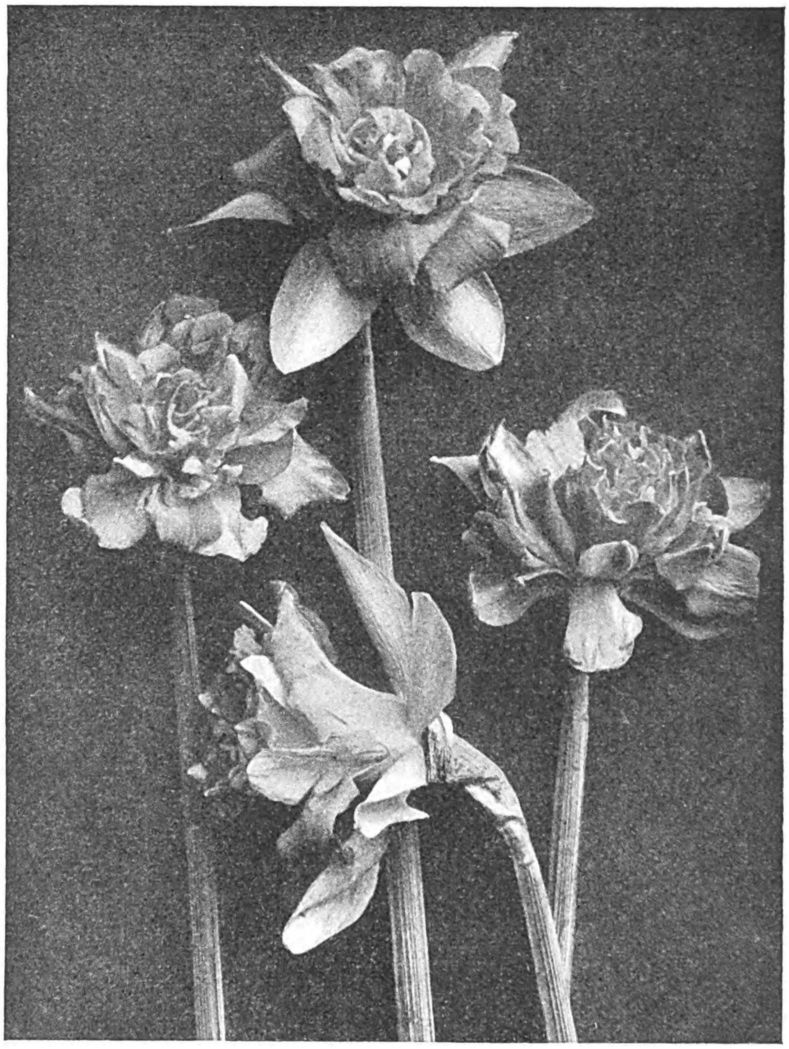


FIG. 72.—NARCISSUS TELAMONIUS PLENUS, SHOWING FLORAL DEGENERATION DUE TO POOR "STRAIN.'

(see p. 145).

G. verna must be placed first among the species as it is the best known, and I am inclined to think, the most beautiful, though this I can never quite settle satisfactorily in my own mind, especially when standing before a well-flowered plant of G. bavarica, or G. tergloviensis (syn. imbricata), but a really good angulosa form of G. verna covered with its wide-open, intensely blue flowers, always reduces me to the silence of adoration, and I feel that nothing can surpass it, unless it be a solid sheet of G. acaulis at its best, than which I am sure nothing could be more lovely.

Gentiana amoena is apparently a gem of gems, though not in cultivation. It is a native of Sikkim, at about 17,000 feet, and forms a shining tuffet of less than two inches high. The flower is a big blue bell with upright lobes. The description inspires me with the feeling that I shall never be truly happy until I can gloat over my plant (or plants) of G. amoena. G. pyrenaica, though both tiny and precious, is not a genuine aristocrat of the high Alps, but forms comfortable masses in turfy places, either damp or dry. It occurs in the Pyrenees, whence it gets its name, in the Carpathians, and in Western Asia. In cultivation it does well in sandy peat, and a sunny, moist situation, though I have had it thriving happily in pure limestone scree, against all precedent, but I should not advise this treatment as a general rule. It makes dense carpets of tiny shoots, clothed in glossy, sharp-pointed leaves, and the long, narrow calyces, expanding into dusky violet stars, appear in May and June. The plant is a great favourite of mine, though the colour is not popular with everyone.

G. Froelichii is too seldom seen in gardens, for it is a little treasure, and presents no great difficulty as regards culture. It throws its two inch-high stems above tufts of pale green, narrow-grooved leaves, each stem carrying a single flower of clear pale blue. The species should be placed in the choicer part of the Gentian bed or scree, but it greatly resents root disturbance, as, indeed, do most of the Gentians.

A species, the merits of which seem not yet to be fully realised, is G. Purdomii (see Fig. 71). Until last year, I had not seen it at its best, and the plant that I did see was a revelation to me. It is of rather loose-growing habit, with longish, narrow leaves, and radiating from the centre are numbers of trailing flower stems, each with several upborne flowers of a fine, rich blue. I am convinced that a mass of this Gentian in full flower would be a sight to rival almost any other Gentian. I cannot yet state from personal experience what soil and aspect it requires, but I believe it does well in a fairly rich, free medium and in full exposure to sun.

Of G. Kurroo I would write with enthusiasm, but my attempts to obtain the true plant have been so numerous and so vain, that I am at last getting disheartened, and am beginning to wonder if it can be obtained at all. One gets G. Purdomii, G. Kesselringii, G. Prezwalskii and heaps of others, but G. Kurroo remains conspicuous solely by its absence. Farrer terms it "A Gentian beautiful among all other beautiful Gentians," and further states that it forms a tuft of long, narrow leaves, glossy and dark green, from which in late summer proceed several smooth stems which trail for four or five inches and then rise gracefully to show their three or four wide open cups of pure, rich blue, with lighter markings in the throat.

G. hexaphylla (Arethusae), I am afraid has rather disappointed me; it is rare, and the foliage is very distinct and characteristic, but the flowers are a rather poor colour, and they do not open very wide, yet it is a plant of great interest. It is one of the Asiatic species, and answers well to the conditions required by the other members of that group.

I had intended, on commencing these notes, to keep more or less to the order of the groups, but I find myself much happier describing varieties more or less as they come to mind, so I will now take a far leap and come to the stately G. lutea, the vast and glorious yellow Gentian of the Alps, which, alas, is rapidly becoming rare in many districts, as the natives have discovered the value of its huge, medicinal root. With its large, corrugated leaves and towering spikes of golden flowers in dense whorls, rising to a height of four feet or even more, it is a noble sight in the alpine hayfields. The large and deep-delving roots render it almost hopeless to collect with any chance of success, but the seeds germinate very rapidly, and though the seedling takes some years to arrive at flowering size, it is well worth waiting for. It grows best in a deep, rich loam, and may be naturalised in meadow land.

Another of the taller Gentians that may be called indispensable is G. asclepiadea, or the Willow Gentian, a native of moist woods and damp fields of sub-alpine regions. It should be planted in deep, cool beds, where it will develop its graceful three-foot stems, studded along their upper half with the sapphire blue trumpets tucked in the axils of the dark, oval leaves. There is an extremely rare and very beautiful white form in existence, which is free from the dinginess of so many of the albino Gentians.

The larger Gentians do not appeal to me so much as the tiny species, but I certainly must admit their grace and garden value where space allows them to be planted, not in twos and threes, but in sufficient quantities to repay their willing efforts to give an imposing display.

There are many others that I could enumerate, but I will terminate these notes with a plea, if any Gentian lover more fortunate than myself should have any of the following varieties to spare, and be willing to exchange, I should be enchanted if he would communicate with me:—G. altaica (true), G. amoena, G. barbellata, G. bellidifolia, G. Boissieri, G. Boryi, G. calycosa, G. coronata, G. depressa and G. Favratii. *Will Ingwersen, The Birch, Sharpthorne, Sussex.*

IMPORTANCE OF "STRAIN" IN COMMERCIAL VARIETIES OF DAFFODILS.

Many growers of Daffodils, more particularly amateur growers, when purchasing bulbs for spring flowering, make a practice of comparing the catalogue prices of certain varieties, and place their orders with the tradesman whose prices are the lowest. In any ordinary sphere of commerce the criterion of price in connection with a named or proprietary article is a reasonably safe one, but this does not apply with similar exactness to the purchase of bulbs. I do not think it is generally known that after a bulb has passed its initial stages of growth the stocks subsequently created from offsets are likely to vary to an increasing degree until, within the course of a few years, the progeny may become almost, if not entirely, unrecognisable as the same variety.

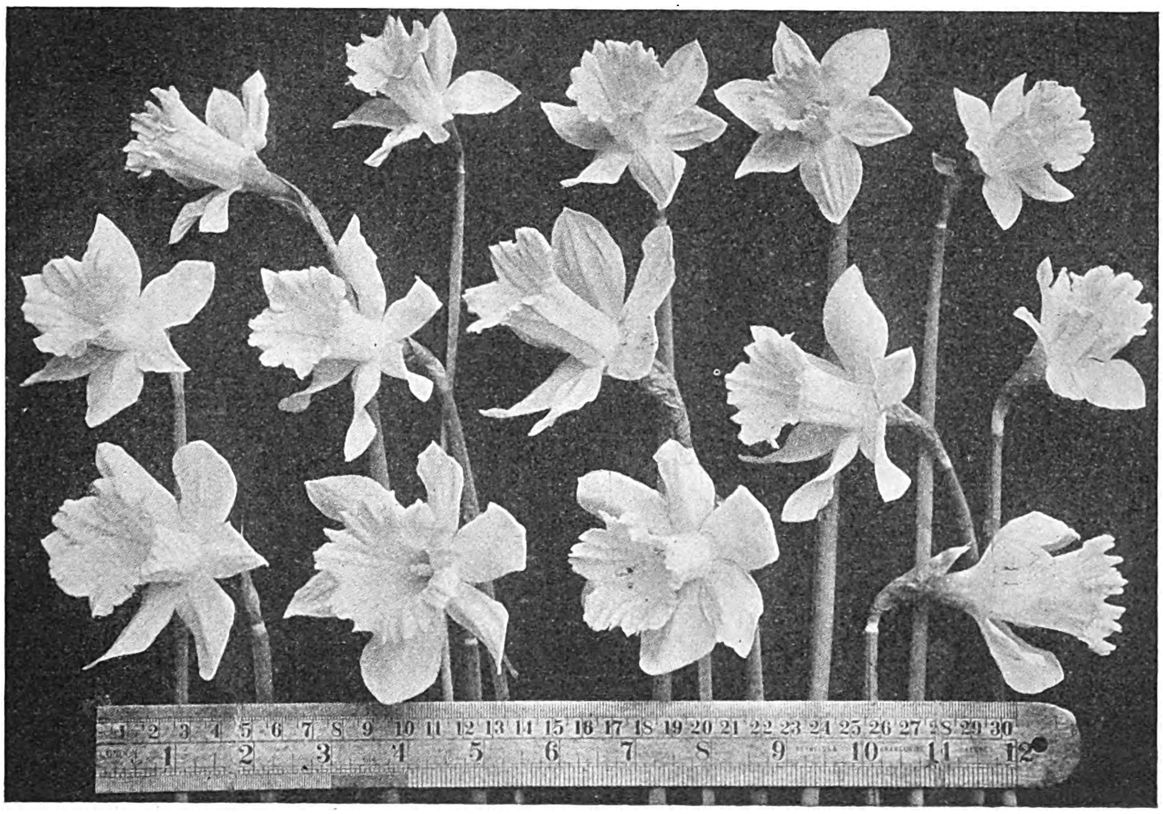


FIG. 73.—NARCISSUS GOLDEN SPUR, SHOWING BAD AND GOOD "STRAINS."

This does not apply only to the Narcissus family; but to widen the reference beyond this species is outside the scope of the present article. The variation proceeds along two well-defined lines.

On lifting a stock of bulbs at the conclusion of a season's growth it will be found that under exactly the same conditions of culture a proportion of the bulbs have produced one or two offsets, while others will be found surrounded by a large number of smaller offsets. At first sight these latter will be regarded as the better bulbs, but such is not the case, as the vitality of the individual offsets is substantially less than where a smaller number of offsets has been produced. If stocks are bred by selection from these two classes of bulbs the flowers in the course of no more than a year or two will show a very marked difference in stamina. In the one case (large offsets) the features of the original parent will be maintained, and by careful marking and selection at flowering time may be improved, while in the other case degeneration will be progressive.

For this reason alone the price paid for bulbs of any given variety should not wholly influence the purchase. Under ordinary circumstances where dealers do not grow their own stocks, comparative prices for bulbs of similar size and of the same variety, form a reasonably good guide to the economy of the purchase, for the simple reason that large growers of commercial stocks seldom make any selection beyond grading the size of the bulbs sold. These will provide, in due course, progeny of both of the classes of stock referred to. A moment's consideration of the above facts will show that the bulbs of rapid increase will quickly outnumber those of slower progression, and as a result it takes but a few years for an unselected stock to exhibit wide variations in the size, substance and general quality of the flowers.

A secondary line of variation in bulbs is the tendency for offsets to vary from the parent in type. This is more marked in some varieties than in others. Close examination of the flowers produced from any given number of bulbs of the same variety will show a small percentage of variation in intensity of colouring, flatness or twist of perianth, expansion and shape of the crown, etc. It will be found that if the bulbs exhibiting these characteristics are marked and selected the peculiarities will, in most instances, be reproduced and may be intensified in the progeny.

Stocks of bulbs which have been forced and allowed to recuperate and forced again over a period of years, rapidly lose stamina. Apart from the disappointing quality of the flowers ultimately produced, they are, like every other order of vegetable and animal creation which has been subjected to unnatural conditions, liable to become hosts to every form of disease. It is seldom, indeed, that we find eelworm or any other complaint in the long-established, "overcrowded" clumps of Narcissi which are to be found growing untended in shrubberies and cottage gardens throughout the country, but such complaints are, unfortunately, all too common where increase of stock has been the first consideration for any length of time.

The accompanying photographs illustrate the above argument. Figure 73 represents a series of flowers from a healthy, commercial stock of Golden Spur. At first sight and to the casual observer, a group of these flowers would be regarded as similar, but closer examination shows that under identical conditions of culture, not only are there variations in size, but also in form. Trumpets are nearly parallel in some instances, and widely-mouthed in others; perianths vary in texture, colour, size and character. Some of the flowers closely approach those of N. obvallaris; others might easily be mistaken for Henry Irving.

Figure 72, reproduced on p. 144, is a further illustration of the variation in N. Telamonius plenus. Some bulbs produce flower which split badly, while others exhibit a well-defined substantial and flat perianth, with a beautiful central rosette, the colour of which again varies from pale yellow to orange. It is of passing interest in connection with this variety, commonly known as "Van Sion," or "Von Sion," that Parkinson, writing in 1629, refers to it as having been introduced by one Vincent Sion, "dwelling on the Banks side in his lives time, but now dead; an industrious and worthy lover of faire flowers." From which record it would appear that the process of years has brought an unauthorised variation in name to add to the variations in the structure of the flower.

To bring the subject to a conclusion, too much stress cannot be laid upon the necessity for constant selection and re-selection from year to year in order to maintain the stamina and true character of any given variety of Narcissus.

From a purchaser's point of view, this constant selection is reflected in the relative cost of similar varieties offered for sale by different growers. *Herbert G. Longford, Abingdon, Berkshire.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

ADONIS GARDENS IN SCRIPTURE.

(*Concluded from page* 82.)

ALTHOUGH other interpretations have been suggested and are possible, it is usual to regard the Adonis story as a Solar myth, and speak of Adonis as the Sun-god. He is slain by the Winter, who is represented as a wild boar, lamented by Aphrodite or Venus, and in response to her pleadings allowed to return to earth during a certain period of the year. The variants show that the story is composite. We have now, however, to try and discover the meaning of Isaiah's phrase "pleasant plants, plants of Naaman, or Gardens of Adonis." Professor Cheyne remarks on the passage (*Isaiah*, XVII, 10) that "Classical students will of themselves compare Isaiah's phrase with the 'Gardens of Adonis' (pots or baskets filled with herbs, which soon withered in the sun as Adonis was killed by the boar), the proverbial phrase for something which arises quickly but does not last." The Hebrews have forsaken the enduring rock of salvation for the fading flower. They have turned away from the living fountain that they may visit the broken cistern. They have turned their backs on Jehovah and their faces on Adonis.

"There is, I think (continues Cheyne), a similar proverbial application of the Hebrew phrase included in the meaning here. 'How quickly the Adonis Gardens fade! So quickly shall the devotion of the Israelites to false gods end in disappointment!' Such appears to be the thought of the prophet."

But since we are not all classical students, the question will naturally arise: Where can we learn something of these Gardens of Adonis which the Jews, in imitation of their polytheistic neighbours, had learned to plant? To rewrite the story in detail from the notices which are scattered up and down the literature of the past would be a task too lengthy and exacting. I will therefore select a few of the most salient facts. Many plants have borne the name of Adonis. Thus, the Pheasant's Eye, the red Anemone, the Argemone, the red Chamomile and the Rose are among the flowers named Flos Adonis. But in Hesychius we find it stated that the Lettuce was occasionally termed Adonias. The earliest classical reference which I have found is from the lips of Socrates: "Will a sensible husbandman (he asks, in the *Phaedrus*) plant the seeds which he cares for, and wishes to bear fruit, in summer time, hurriedly, in the Gardens of Adonis, and then exult at seeing them sprout up finely within eight days? Or will he not rather, if he plant such seeds at all, do it for the sake of amusement or a festival? While that which he is in earnest about, he sows according to the rules of agriculture in a suitable soil, and is content if he sees it reaching its prime in eight months?"

From this allusion, apparently, sprang the proverbial expression—Gardens of Adonis—as a byword for anything which quickly flourishes and as quickly dies. To Theocritus, one of the Greek poets, we owe an allusion to these tender or delicate gardens which sometimes flourished in golden baskets—recalling the "Apples of gold in pictures of silver," of the Old Testament—placed by Berenice beside the image of Adonis. Archdeacon Hare thinks that Pliny misunderstood the nature of these pots of herbs when he mentioned the Gardens of Adonis along with those of the Hesperides and of Alcinous, as objects of great admiration among the ancients. In this surmise, however, the venerable Archdeacon may be wrong, since Domitian is known to have planted, near his Stadium in Rome, gardens in honour of Adonis; and since Pliny and Domitian were contemporaries, we must assume that the writer of the famous Natural History used the expression discreetly and with full knowledge of its different uses. More than one description has come down to us, and our own poets, such as Shakespeare, Spenser and Milton have not been slow to use the allusion for their own ends.

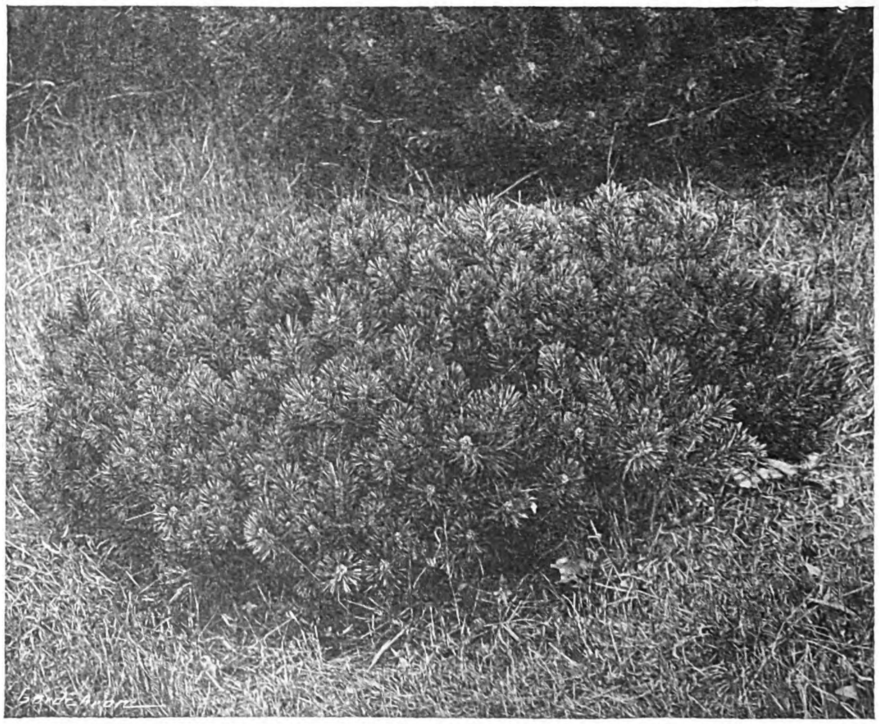


FIG. 74.—PINUS MONTANA MUGHUS VAR. SLAVINII.

(see p. 147).

Gardens of Adonis are generally described as quick-growing plants reared in pots or baskets, and carried by worshippers at the festival of the god. Among the plants so grown were Lettuce, Fennel, Cress and the like, and not merely cut herbs, as some writers would lead us to suppose. The custom varied, indeed, and varied widely in different places. Thus, at Alexandria, Adonis Gardens were sometimes baskets of silver, sometimes golden boxes or jars, while Myrrh, cakes made of honey, oil and meal in the likeness of things which creep or fly, were employed. The use of Myrrh was in allusion to one form of the legend which made Adonis the offspring of Myrrha or Smyrna. In the Athenian festival small pots of flowers which faded rapidly were in vogue. They were intended as symbols of the life and death of Adonis. But when we find the Alexandrians using meal in the place of flowers and herbs we seem to see another proof of the composite character of the legend. Frazer holds that Adonis was a Corn-spirit, and if so, he would be rightly served with meal and grain, with honey and oil.

In our own poets are found evidences of familiarity with this subject.

"Divinest creature, Astraea's daughter, how shall I honour thee for this success? The promises are like Adonis' gardens, that one day bloomed, and fruitful were the next." So says Charles to Pucelle in the first part of King Henry VI, showing that, to Shakespeare, these gardens spoke of rapid fruition. Spenser, too, when recounting the origin of fays and elves, mentions them as the spot where the first elfe and the first faye met. In the *Faerie Queene* (iii, 6) there is a description of the gardens which cannot here be quoted.

We naturally expect to find in our classical-minded Milton an allusion to this subject, and we are not disappointed, except that, like Pliny, he links together what to many will seem inappropriate allusions. To him Eden is:

> Spot more delicious than those gardens feign'd
> Or of reviv'd Adonis, or renown'd
> Alcinous, host of old Laertes' son.

I find, indeed, that Bentley has raised an objection to the passage, but cannot help thinking that this is due to the fact that the term Gardens of Adonis was thought to apply only to pots of herbs or baskets of flowers, whereas it had a wider application.

There is a point of peculiar interest to gardeners arising out of this subject. Some hold that the festival of Adonis was celebrated in winter and that in order to obtain the plants necessary for the observance strong natural and artificial heat was used in the room in which the pots were placed to hasten the growth of the plants. That raises the question: When were conservatories, hothouses and artificial heat first employed? The reader interested in the subject may find it discussed with all his usual learning by Humboldt in his *Cosmos* (English Translation, Bohn. ii. 450). He follows Boeckh in the opinion that the Adonis Gardens consisted of plants in small pots, such as Lettuce, Fennel, Barley and Wheat, but not variegated flowers or Mignonette, which were intended to represent the garden where Aphrodite met Adonis—symbol of the quickly-fading bloom of youth, of luxuriant growth and of rapid decay.

Since festivals, known as Adonia, were from very early times celebrated annually at Alexandria, Athens, Byblus and elsewhere in memory of the death of Adonis and his return to life (as some variants affirm), so it was inevitable that the Jews, who were in touch with these places, and always exhibited a marked weakness for such observances, should become familiar therewith, and wish, in times of relapse from the sterner monotheism of the prophets, to adopt the same. Indeed, when we learn that the women of Sidon mourned for Adonis we readily understand the Tammuz cult of the lapsed Israelites and the Adonis Gardens of the idolatrous Jews.

Much more might be written respecting the Gardens of Adonis in their biblical associations, but the study must be brought to a close. Since the field, however, is extensive, and some of the details are unfamiliar, it may be well to conclude with a brief summary of the main points which have come under review.

In early ages every country had its solar myth. In Babylon it centred around Dumuzi and Istar; in Egypt around Osiris; and in Phoenicia and Greece, around Aphrodite or Venus and Adonis. They represented the decay of Nature, and, as the people of these lands intermixed, their legends were compared and assimilated. Thus Tammuz became one with Osiris and Adonis, and the festivals of one were celebrated as were those of another. At these festivals, symbols of the fleeting character of things, under the title of Adonis Gardens, consisting of flowers, herbs and vegetables, cereals and even cakes made of meal, honey and oil, were used. When the Jews departed from the strict Semitic worship they adopted that of Tammuz or Adonis. They wailed and lamented for the dead god. Thus Ezekiel sets forth his vision of the women weeping for Tammuz, Jeremiah warns against lamenting for Adonis and his lady, and Isaiah shows the folly of turning to the Gardens of Adonis as a substitute for "the Rock of our Salvation." *Hilderic Friend.*

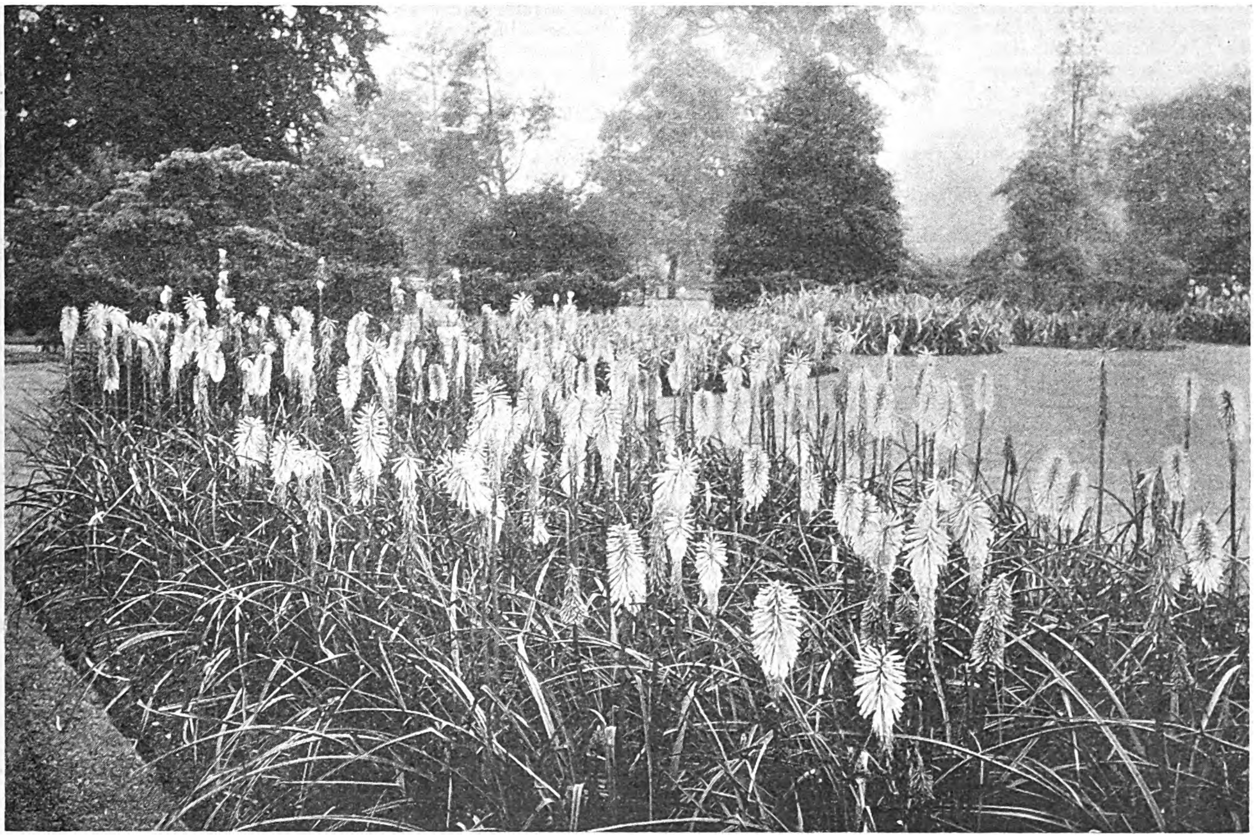


FIG. 75.—KNIPHOFIA UVARIA VAR. SAUNDERSII AT THE ROYAL GARDENS, KEW.
(see p. 141).

PLANTS NEW OR NOTEWORTHY.

FARRER'S THREEPENNY-BIT ROSE.

This Rose appeared as a distinct seedling in a pot of young Roses raised from seeds sent home by the late Mr. Reginald Farrer. It differed so widely from its companions that we planted it out separately and unwisely trusted to memory for the number under which the seeds came. I believe it should be "F.774, a small, thorny bushlet from the northern foothills of the Da-Ba-Say," and that the others in the pot have proved to be varying forms of R. graciliflora (Rehder and Wilson). So far as I can learn, nothing exactly resembling the plant shown in the accompanying illustration (Fig. 70) was raised by others who had a share in these seeds from Farrer.

It is not represented among dried material sent to Edinburgh by Farrer. Thus it still lacks a specific name, and is known to those who have admired it here and carried away plants as the "Threepenny-Bit Rose." A sixpence well represents the size of the flowers of R. graciliflora in the majority of its forms, and the lesser coin fits those of this smaller species.

It is a remarkable plant at all seasons. The young shoots are so densely covered with prickles and setae that they remind one of some furry caterpillar with a waxy-grey body and rose-coloured hair. Before the flower buds open the whole bush seems set with coral beads. The open flowers are of a peculiarly soft, warm pink, which the light golden anthers cause to glow in the same way as in the larger flowers of that beautiful old Briar, Rosa Andersonii. The leaves are so small and delicate in outline that the bush has a dainty, finished look peculiarly its own, not only when the grey-green of young leaves sets off the salmon-pink flowers, but again, when touches of purple and crimson appear in autumn along with the brilliant coral-red of the tiny hips.

At first, I hoped this Rose would remain dwarf and be suitable for a good place in a rock garden. It has, however, thrown up strong shoots that arch out above my head; and to do it justice the plant demands a position in the open, where it may form a specimen at least twelve feet in diameter. *E. A. Bowles, Myddelton House.*

PINUS MONTANA VAR. MUGHUS, WILLK., FORMA SLAVINII.

From seed-beds of the dwarf varieties of Pinus montana one may frequently select some exceptionally compact or slow-growing form that is suitable for the rock garden. These are usually obtained from P. montana var. pumilio, Willk., and one occasionally meets in cultivation forms of this which have not exceeded three feet or four feet in height, but Mr. B. H. Slavin, Superintendent of the Parks at Rochester, New York, has found a form which was raised from imported Bulgarian seed of the variety P. m. Mughus, which is so distinct in habit that it is worth recording. This variety—P. m. Mughus forma Slavinii— has made a prostrate mat only eight inches to twelve inches in height, with a present diameter of over four feet. The photograph (Fig. 74) was taken in 1920, when the plant was fifteen years old and three feet in diameter. *Murray Hornibrook.*

NOTES FROM KEW.

The weather conditions have been by no means favourable at Kew for early flowers out-of-doors since the first week in January. Rhododendron mucronulatum was at that time covered with a few open flowers and very many flower buds, but frosts, snow and biting north-east winds have frustrated several subsequent attempts of the later flowers to open. Protected by a glass frame and a mat at night, a bush of the white form of R. moupinense is flowering freely in a sheltered position near King William's Temple. Though well set with flower buds, R. Nobleanum is later than usual this year. Just a few half-developed flower trusses were showing colour a month ago, several of the more forward were damaged and the remainder held in check by the cold.

The most showy Witch Hazel at the time of writing is Hamamelis japonica var. Zuccariniana. Several trees seven to eight feet high are covered with the pale lemon-yellow blossoms, forming a pleasing contrast to the rich yellow flowers of H. mollis, H. japonica and H. j. var. arborea.

On a wall, and in the open border, Garrya elliptica is attractive, laden with large numbers of greyish-green catkins up to five inches or six inches long on the male plants, and about half as long on female bushes. This Garrya is a very useful evergreen shrub, apparently hardier than is generally supposed, or is it that during recent years the winters have not proved so trying for this, and other Californian plants ? Not being easy subjects to transplant, it is desirable to cultivate small Garrya plants in pots until ready for planting in their permanent positions.

It is questionable if we value fully as an evergreen bush the Laurustinus (Viburnum Tinus) in its numerous varieties. Free in growth and valuable for half-shaded positions, it is not only useful in the shrubbery border, but is one of the best evergreen shrubs to plant beneath deciduous trees. In the open the Laurustinus is a valuable winter-flowering bush, lasting in beauty more or less from November to March. It is worthy of consideration as a hedge of a not too formal character. Few shrubs are more readily propagated by cuttings inserted in late summer or early autumn under the shelter of a west wall, and covered with a handlight or cloche.

Several of the evergreen Chinese Barberries are proving valuable and distinct additions to our pleasure ground beds and borders. Among them the neat, upright habit of Berberis Gagnepainii singles out this species for planting as a hedge when one of moderate size and distinctive habit is required. Its compact growth, rich dark green leaves with undulated margins, and abundant spines, are singularly attractive. For the rock garden and groups in the foreground of beds and borders the dwarf evergreen B. candidula is deserving of note. Some three feet in height and more in diameter, the bushes are close and compact in habit, with dark shining green leaves, conspicuously blue-white beneath. This distinctive colour was no doubt responsible for the title of B. Wallichiana var. hypoleuca, the name by which we first grew it. The bush, however is sufficiently distinct from that species to merit the distinctive name of B. candidula given by Schneider. Quite the opposite in point of growth is the tall, loose habit of Berberis Veitchii. The lance-shaped, spiny leaves, up to six inches long, are among the largest of the true evergreen Barberries. It was first introduced by Messrs. James Veitch and Sons as B. acuminata, a species collected by Delavay in Central China in 1882, and named by Franchet. Schneider, however, considers Wilson's plant, collected in Western Hupeh in 1900, as quite distinct, and described it as B. Veitchii. Another new Chinese species, B. atrocarpa, has light green leaves, one-and-a-half to three inches long, the spreading bushes five feet to six feet tall and pleasing in appearance.

The hybrid varieties of the Swiss Heath, Erica carnea, furnish, perhaps, the brightest colour in the out-door garden, for frost, snow, wind and rain cannot dim their dainty blossoms. From December to March the rosy-red blossoms on the compact little bushes are delightful. From six to nine inches high, the plants spread with age to a width of eighteen inches or more, though when they attain this size they are inclined to become ragged and are better replaced by young plants. Described as Potter's Hybrids or Backhouse's Hybrids, the best of the dozen or more named sorts are King George V, praecox rubra and Mrs. Sam Doncaster.

Two Chinese Pyracanthas are very attractive by reason of their highly-coloured fruits. P. Gibbsii var. yunnanensis, being perfectly hardy, is the more valuable. The fruits are light red in colour, not quite so large as those of P. Lalandii, but very freely produced. Flowering some three weeks later than that species the fruits are much later in ripening, and usually hang on the bushes untouched by birds until March. Except in the south and west, the protection of a wall is desirable for the less hardy Pyracantha angustifolia. In this case, the fruits are rich orange and very attractive, disposed freely among the evergreen leaves.

Being evergreen, the Pyracanthas are not easy to transplant in the open ground. For this reason it is desirable to cultivate the plants in pots until ready for planting in their permanent positions. *A. Osborn.*

ORCHID NOTES AND GLEANINGS.

CALANTHES AT NETHER WARDEN.

The late Mr. Norman Cookson and Mrs. Cookson, of Oakwood, Wylam, probably did more than any one else to develop the cultivation of Calanthes. Their success as hybridists is well-known and need not be recounted, except for a brief reference to the two last hybrids raised in that collection, *i.e.*, C. Angela, in which the whole of the flower, excepting the white disc on the labellum, is a rich purple, and C. Ruby var. Cooksoniae, a pure white variety which is considered the finest in substance and form of its race. Each of these was awarded a First Class Certificate when exhibited at the meetings of the Royal Horticultural Society at a time when Calanthes were not altogether in favour.

Last year I had the privilege of sending *The Gardeners' Chronicle* a few notes on Mr. Clive Cookson's garden at Nether Warden, Hexham, and stated then that many seedling Calanthes were flowering for the first time. I have been able to see the plants again in a more vigorous state, and was so impressed that I thought a further note desirable. Mr. James O'Brien recently recorded C. Hexham Pet (C. Angela × C. Bryan). There were some two dozen plants of this cross in flower, and they are a most remarkable set. In most cases the flowers resemble those of glorified varieties of C. Bryan and C. Wm. Murray, in form and colour ; others were of pink shades suffused with rose ; in only one instance was the colouring of C. Angela at all evident. This hybrid may best be described as a purple C. Bryan. The larger, deep rosy-purple flowers have their petals reflexed as in that variety ; the sepals are of a lighter shade, and the lip is rich plum-purple altogether darker than the colouring seen in C. Angela.

The second hybrid Mr. O'Brien recorded was C. Hexham Lad (burfordiense × Angela) It is the variety C. Hexham Lad var. Richard which is of the greatest interest, for this is a plant carrying fifteen flowers which are in every way superior to those of C. Angela in colour, while the individual blooms are about the size of those of C. Ruby var. Cooksoniae. The flat lip is deep blood-red, excepting the white disk. The sepals are of similar colour and the petals slightly redder and of good form. This is the finest Calanthe I have seen, and I congratulate Mr. Clive Cookson and his gardener, Mr. Stables, on their success. *H. J. C.*

INDOOR PLANTS.

JASMINUM PRIMULINUM.

This Chinese Jessamine is a very valuable winter-flowering subject for the cool greenhouse. A native of Yunnan, it thrives out-of-doors in very sheltered gardens of the south and west, but otherwise can only be considered a greenhouse plant, being insufficiently hardy for cultivation on a warm wall in the London district.

It is, perhaps, seen to the best advantage trained to the pillars of a large greenhouse or conservatory. Close pruning at the end of March each year, after flowering, induces the production of vigorous, young shoots. These grow to a length of several feet, and if well-ripened, are wreathed in a succession of large, yellow blossoms from Christmas to March.

Where space permits, it is surprising how attractive J. primulinum is growing in a hanging basket. A specimen in the Temperate House at Kew, hanging in one of the octagons, is an object of great beauty. Hard pruning each year after flowering induces the production of many new shoots which, at the present time, clothe the basket and are festooned with yellow blossoms. *A. Osborn.*

ACOKANTHERA SPECTABILIS.

This Acokanthera is an excellent subject for the intermediate or stove house. It is a native of the western regions of South Africa and was first flowered in this country in 1872.

The plant is of a shrubby habit and bears elliptic leaves of deep green colour and is quite glabrous except for a slight hairiness of the inflorescence.

The flowers appear in January or early February and possess a delicious fragrance, very much resembling that of Lilac. They are borne in dense, axillary, branched cymes, and are pure white, somewhat resembling in appearance the inflorescence of Ixora.

This plant has very poisonous properties, being very closely related to A. venenata, the "Gift-boom" or "Bushman's Poison" of the South African settlers. From this latter plant the natives extract a substance for poisoning their arrows. Acokanthera spectabilis is figured in *Bot. Mag.*, tab. 6359. *T. H. Everett.*

TREES AND SHRUBS.

SHRUBS FOR LARGE LAWN BEDS.

Many kinds of shrubs are ideal for filling large, or even small, lawn beds, and it it surprising how this class of plant has been neglected for such purpose ; too often they are jumbled with other plants in a mixed border, where they have no opportunity of showing their full beauty.

Given space to develop, many shrubs make fine individual specimens for the lawn, and should be grown as such where there is no space to plant beds of them. Forsythia suspensa, F. intermedia var. densiflora and F. intermedia var. spectabilis are three beautiful spring-flowering shrubs suitable for the purpose ; the last-named being the best.

Philadelphus Virginal is very fine for a large bed, other good varieties being Bouquet Blanc, Rosace, Voie Lactee, and purpurea-maculatus, which is worth growing for its spicy fragrance alone. There are many beautiful Barberries of recent introduction from China worthy of a place in any garden, but I doubt whether any of them is so useful or beautiful for the purpose as the older B. Darwinii and B. stenophylla.

Other good subjects for furnishing large beds are Buddleia variabilis var. magnifica (syn. Veitchiana), B. globosa, Cytisus albus, C. praecox, C. Dallimorei and the many beautiful varieties of C. scoparius. Hamamelis arborea and H. mollis should be included for their winter-flowering, the blooms of the latter being deliciously fragrant. Many of the Magnolias make fine specimens ; M. stellata is specially suitable for filling a bed in a sheltered position, as it is very fragrant and flowers so early. Prunus triloba fl. pl., often seen trained on a wall is also fine in the open. Pyrus floribunda var. atro-sanguinea, P. purpurea, and P. Scheideckeri, are all excellent for planting singly or in large masses. Rhus cotinoides, R. Cotinus and its variety atropurpurea, as well as R. typhina and its variety laciniata, are all worth planting for their foliage effect. Ribes sanguineum var. splendens, Rubus deliciosus, Spiraea Aitchisonii, S. arborea, and S. discolor (syn. ariaefolia), are also useful for the purpose.

Tamarix pentandra, which is more generally known as T. hispida aestivalis, is very beautiful and should be pruned hard back every spring. Viburnum Opulus var. sterilis, V. plicatum and V. tomentosum Mariesii are all handsome shrubs ; also some of the better varieties of Diervilla (syn. Weigela). Planters should make a more intelligent use of this beautiful class of plants which, although seen in many gardens, are seldom displayed to the best advantage. Young specimens of these shrubs may still be planted in carefully prepared sites. *J. Coutts.*

FLORISTS' FLOWERS.

DOUBLE WALLFLOWER EARLY WONDER.

After many years of careful effort, Mr. Ernst Benary, of Erfurt, succeeded in obtaining an annual, double-flowered Wallflower. This interesting variety was exhibited at the meeting of the Royal Horticultural Society on June 29, 1926, when the Floral Committee granted it an Award of Merit. The plants and flowers then shown were described under the title of "Double-flowering Annual Wallflower" in our issue of July 3 of that year, when reference was made to the "rather dingy brown" colour of certain forms. Later, Mr. Benary brought specimens and coloured figures of this new introduction to our office, and these proved that brighter hues were available.

A week or so ago Mr. Benary wrote us stating that "plants raised from seeds sown in July, 1926, commenced to flower in a greenhouse in November, and continued to bloom through the winter. The photograph enclosed (Fig. 76) was taken in one of our greenhouses at Erfurt on February 1 this year."

This new annual double-flowered Wallflower, now named Early Wonder, should prove valuable for the decoration of the warm greenhouse or conservatory during the winter, and if successional batches of plants are raised, the flowering period could be extended indefinitely.

SWEET PEAS.

If Sweet Peas are required to bloom very early, that is in June and July, the plants should be raised in September and October, wintered in frames or a cold greenhouse, and planted out about the end of March. If required for ordinary summer flowering from, say, the middle of July onwards, it is best to sow the seeds in January or February, and plant out the seedlings after they have been hardened, early in April. Those who, for any reason, such as lack of frames or a cold greenhouse, find it inconvenient to sow the seeds in autumn or in January-February, may sow in the open from the end of March onwards. Successional sowings made at intervals of a fortnight or so, from the middle of April to the end of May, will extend the flowering season well into the autumn up to such time as frost cuts the plants down.

In all cases it is best to sow the seeds in pots or boxes filled with light, porous soil, placing them about one-and-a-quarter-inch deep. Place three seeds, triangular fashion, in a three-inch pot, about an inch apart and the same distance from the side of the pot. When sown in boxes the same procedure should be followed, but in this case it is as well to allow a full two inches between each seed, and a similar distance between each row, allowing two inches also between the sides of the boxes and the nearest seeds.

The practice of chipping Sweet Pea seeds is not to be recommended, except in very special cases. Some of the best Sweet Pea growers of late years emphasise the fact that only very hard-coated seeds should be chipped. If white and wrinkled seeds are chipped it generally means that they rot instead of grow.

It is of the utmost importance that, so long as Sweet Pea seeds remain in their pots or boxes, plenty of air be admitted to the frames or greenhouse; but so soon as the seedlings appear they should be protected from excessive moisture, for with an excess of wet at the roots they will be liable to injury from frost. On no account should germination or growth be hastened by artificial heat. When four pairs of leaves have formed, stop each plant once, and after a little further progress has been made, if specially sturdy or exhibition plants are required, transfer them singly to three-inch pots. It is a good plan, when the seeds are sown in pots, to plunge the latter in soft, friable soil to a depth of two or three inches, in frames, where these are available. This not only keeps the pots steady, but facilitates watering, and also tends to keep the temperature of the soil in the pots more even than where the latter are stood on a hard surface or on the greenhouse bench.

Another very important point in connection with the culture of Sweet Peas is to give due consideration of the site in which the plants are to be grown. An open, sunny situation is always desirable, provided it is not exposed to high winds or driving rain.

Staking is another highly important matter. When the seedlings are transplanted, the plants should be at once supported carefully by small twigs of sufficient height to carry them safely upwards to a height of at least twelve to eighteen inches, after which the plants should be sufficiently strong to attach themselves to tall Pea-sticks. To interweave the long stakes in double rows, so as to really interlace and support one another, is the essence of good and successful staking.

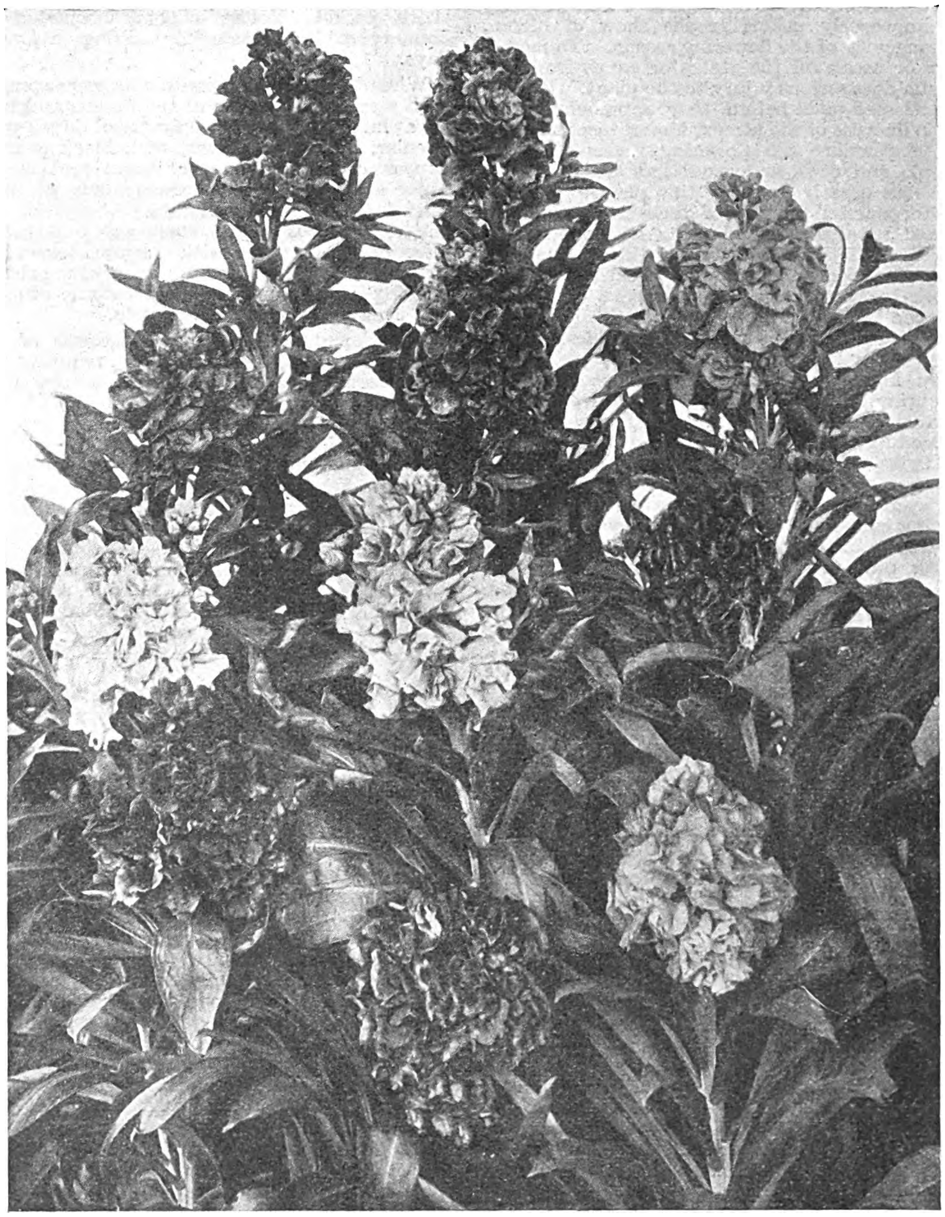


FIG. 76.—DOUBLE WALLFLOWER EARLY WONDER.

I cannot too forcibly urge the importance of early trenching and the proper preparation of the ground wherein the seedlings will be transplanted. Take out a wide trench and place the top soil on one side. Next, remove and discard the subsoil to a depth of twelve inches, and after breaking up the bottom of the trench with a fork, substitute an equal quantity of short, well-decayed manure, rotted leaves, old potting soil, or any other suitable material that may be available. Finally, return the top soil to its original position. In place of the farmyard manure leaf-mould may be mixed with green manure and a little fine soil or bonfire ash. In such cases a light dressing of lime may be applied; soils in which Sweet Peas are to be grown should contain at least two per cent of lime. Nitrogenous manures in any form are harmful when applied in excess, and are liable to predispose the plants to disease. Heavy ground may be dressed in the autumn with 7 lb. of basic slag per square rod, and 2 lb. of sulphate of potash in the spring. In the case of light soils, there is no necessity to use basic slag; such land may be dressed in spring with 4 lb. of superphosphate of lime and 2 lb. of sulphate of potash. In many instances, however, it may be found more convenient to use a "complete" fertiliser, prepared expressly for Sweet Peas. A dressing of dry wood-ash, well-raked in the soil a little in advance of planting, is of great value.

Outdoor sowings are often made in August or September where a warm soil and favourable situation can be ensured, but the Sweet Pea is liable to attack from slugs and sparrows, against which special precautions must be taken, not only from the moment the seedlings appear, but even beforehand. Against the slug the usual precautions should be taken, such as the use of ashes, old soot, lime and slug-traps. The sparrow is more difficult to cope with. Half-inch Pea-guards are generally effective during the earlier stages, if closed at both ends. Black cotton, too, is sometimes useful, but not reliable.

To obtain blooms for exhibition purposes, Sweet Pea plants should be trained as upright cordons up Bamboo canes or tightened cords, all side-shoots being taken out. Leave two strong basal growths on each plant. These, when trained up the supports will produce long, stout stems, mostly carrying four blooms to the spray—a spray being defined, for exhibition purposes, as "the flower scape or stem alone, with no portion of main or lateral growth attached."

It is not always realised what a difference the simple act of cutting Sweet Pea flowers properly or improperly makes in the show of bloom, or longevity of the flowering season. To merely tear or break off the stalks or stems from the haulm does serious injury to the plant. Picking off all seed-pods before they approach maturity is likewise of the utmost importance in regard to lengthening the flowering season, for the simple and obvious reason that the formation of seeds greatly reduces the plant's vitality. An occasional dusting of lime and soot, well mixed in almost equal parts and allowed to stand until the caustic properties of the soot have disappeared, in showery weather, will do much to keep away slugs, improve the colour of the foliage, promote growth generally, and also act as a preventive of mildew.

As early in April as possible, all plants not sown in the open should be placed in their flowering quarters. The exact date will depend on weather conditions. Place a line along each row and mark off every twelve inches by means of twigs or old garden labels. If exhibition flowers are desired, allow eighteen inches. Some growers prefer single rows, but for producing cut blooms for ordinary purposes I have found that a double row is preferable, the plants being put out alternately about nine inches apart. Begin planting by making a hole with a trowel, big enough to take one plant only; turn the pot in which the plant is growing singly, or otherwise, upside down and knock out the ball of soil entire. This may easily be done if the plants are well watered the day before. Place each plant carefully in its hole, with the roots comfortably separated, and fill around the latter with fine, dry, sifted soil, lightened with a fair quantity of fine sand. Fill the hole carefully and press the soil firmly on every side, leaving a slight depression to act as a cup to facilitate an immediate watering when the row is completed. This method of planting has a further advantage in that it enables the gardener to arrange his Sweet Peas tastefully, according to a prearranged colour scheme. When the rows are planted, there should be a decided trough-like depression from end to end, with well-defined banks of earth on each side to retain water when it is supplied in dry weather. In May to June, if the weather is dry, the plants will be greatly benefited by a liberal watering once or twice a week. At the end of May, mulch or top-dress the roots with well-decomposed manure or spent Hops, over which a light dressing of the lime and soot mixture may be added. *E. A. Saunders, Compton, Sussex.*

A WILT DISEASE OF THE CARNATION.

During 1926 some young Carnation plants were received at the Cheshunt Research Station which were attacked by an apparently new disease. No record can be found of its previous occurrence. Up to the present only a little work has been done, and this note is issued so that Carnation growers may be aware of its existence and keep a look out for its appearance.

The plants were about four months from the cutting stage, and showed signs of wilting, generally presenting a stunted appearance. The inside of the wilted stems was brown at the base, infection most probably having taken place below soil level. Both the pith and the wood were diseased, the wood being browned for a considerable distance up the stem.

Two fungi were isolated from the diseased tissue, but only one proved to be pathogenic, and inoculations into the stems of healthy Carnation plants were always successful. The fungus was easily re-isolated from the diseased tissue following inoculation.

The fungus has not been fully identified, but is probably an Altenaria sp.

Young shoots of healthy Carnation plants were inoculated in December, and complete wilting occurred after a period of thirty-six days. When the older stems were inoculated complete wilting took a much longer time, namely, sixty-one days; stunting of the younger and more distal shoots on these inoculated stems was observed after a comparatively short period. Young shoots inoculated in January exhibited complete wilting in twelve days.

When healthy Carnation plants were sprayed with a spore suspension of the fungus and kept in a humid atmosphere for two days, pale, circular, discoloured areas, with black centres, appeared on the younger leaves and stems. These areas have a close resemblance to those caused by Altenaria Dianthi, S. and H. In one case a freshly cut stem was exposed to infection by spraying with a spore suspension. The inoculated stem died back and young shoots growing away from the stem became stunted and eventually wilted completely.

Experiments on the rate of growth of the fungus, in pure culture, at different temperatures have been carried out. The optimum temperature appears to lie between 73°F. and 77°F., the fungus, however, grows reasonably fast at 68°F.

It might be supposed that the fungus is Altenaria Dianthi, S. and H., but the mode of infection and size of spore are important differences. The size of the spores of Altenaria Dianthi is given [*] as 26μ—123μ × 10μ—20μ, whereas the spores of the fungus in question are 26μ—103μ—long and 13μ—38μ wide, the latter being shorter and wider. *Wilfred Corbett.*

MARKET FRUIT GARDEN.

Although the rainfall of January was below the average (2·32 inches at my place), it seemed to be a wet month, because a certain amount of rain fell on all except eight days. The frequent showers, often accompanied by strong wind, made it a bad month for spraying. However, some progress was made with this work, and there is now no doubt that it will be finished in good time. Whenever spraying was impossible, the skilled hands turned to pruning and the rest to the grubbing of overcrowded trees. It has fortunately been possible to keep ahead of spraying with this last job, thus economising wash and facilitating the work. The increased space for getting about amongst the trees with hoses and lances has been much appreciated, and has led to more efficient spraying. The work of grubbing is now drawing to a finish. It has proved rather formidable, not because the trees take long to uproot, but because there is such a lot of wood to clear away. The stems and larger branches are, of course, saleable as firewood; but the smaller stuff is dragged to the nearest headland and burnt on the spot. I have always found that the price realised for faggots is insufficient to pay for the tying up, at any rate, in a district where better faggots are obtainable from the woods. Moreover, it seems safest, in view of the risk of spreading fungous diseases, to get the stuff destroyed promptly.

Pruning.

There is still a lot of pruning to be done, and I suppose, as usual, some trees will not receive attention. It is, perhaps, the most trying feature of fruit-growing for market that one cannot afford to have everything in perfect order. So many jobs should have attention at one tine, and it is impossible to keep a staff big enough to deal with all. To get all my pruning done at the proper time it would be necessary to have six or eight men doing nothing else during the whole dormant period. But this would mean a separate gang of half-a-dozen for spraying and planting. As it is, spraying has to have first claim whenever the weather is suitable, for this must be completed at all costs. It is futile to get the other work done and then to be robbed of a crop by pests and diseases. Pruning has to be carried on until the trees are near blooming and spring work claims attention. The ideal plan would be to get all pruning finished before winter spraying. In a regular fruit-growing district this may be possible, as there are men accustomed to the work who can be taken on temporarily. This is not the case in my locality. Men have to be taught to prune, and by no means have all either the aptitude or the inclination.

Many of my trees are Apples on the free stock. For very many years after the heads were properly formed, they needed nothing beyond thinning out, this being the best way to bring the trees into bearing quickly. Now, however, all except the most vigorous varieties have grown to a stage at which it is necessary to return to more drastic pruning in order to keep them moving. This means leader-tipping, or in some cases more severe heading back, in addition to thinning out; and the extra time needed is surprising. Many of the largest trees take nearly an hour each to prune. There is a great difference in varieties in this respect. Bramley's Seedling gives least trouble, as it seldom needs more than a trifling amount of thinning out, and hardly ever any tipping at all. It notoriously does best when left almost to itself. As a striking contrast there is Allington Pippin, which every year is crowded with shoots which must be spurred or cut back to fruit buds. Even more time, however, is taken by trees which show a lot of diseased wood, as is often the case with Cox's Orange Pippin. This winter I find that this variety and some others have more canker than has been seen for many seasons, whilst the winter stage of scab on the young shoots is unusually prevalent. All canker wounds have to be pared out and painted, and scabby wood cut off and burned.

Young trees are quickly pruned and should, of course, never be neglected; but they call for more skill than older trees if a good foundation is to be built up. Here again the treatment must be modified to suit the variety. One of the most pleasant to prune is Rival, which is naturally shapely, and, in spite of its strong growth, very readily forms natural spurs if not cut too hard. Early Victoria is also easy to prune, though it requires quite different treatment. Owing to its extremely fruitful habit, it may have all the laterals fairly closely spurred every year, whilst the leaders need tipping annually to keep the tree growing. With many varieties, if on the free stock, such pruning would delay bearing almost indefinitely, but not so with Early Victoria. One of the most tiresome to prune is Beauty of Bath, owing to its habit of making an unbalanced head, especially if in an exposed position. This is one of the most tender varieties and seems to be more sensitive than others even to wind. To correct the unbalanced head I find it best to shorten the strong shoots on the taller side of the tree, or even, in extreme cases, head them back to a weaker lateral, and leave the shoots on the weaker side of the head full length. If the pruner follows the old book direction, and cuts the weak shoots more severely than the strong ones, the head becomes more unbalanced than ever. This idea dies hard. Pruning promotes new growth, it is true; but, at the end of the year, the total length of the shoot is greater if it was not pruned than if it was. At one time, when trees began to run away at the tops at the expense of the shoots round the bottom, as some will, I used to prune the latter with the idea of stimulating growth and inducing them to catch up to the top growths which were not pruned. I found, however, that exactly the opposite result was obtained, and the tree rushed upwards more than ever. It has since been shown in pruning experiments that trees which do not have their leaders tipped grow bigger than if they are tipped, at any rate, until the earlier fruiting induced by non-pruning begins to have a dwarfing effect.

---

[*] *The Fungi which cause Plant Disease*, by F. L. Stevens. Macmillan, 1913.

Pressure in Spraying.

Plenty of pressure is an important point in spraying. Several growers have recorded that they get better results from tar-distillate wash when applied with a power sprayer than when a hand machine is used. I have noticed the same thing. All my older plantations are sprayed with a power outfit, but a good hand sprayer is used for younger trees. The result is not quite so good in the latter case. The control of aphis is complete, but rather more caterpillars survive. I have just had another lesson in the importance of pressure. At the beginning of the spraying season my power sprayer was not giving its full pressure, owing to some defect. The pressure was only round about 100lb per square inch. After a time the man in charge managed to put the matter right, and even got the machine to deliver at higher pressure than it ever has done before, namely, 250lb. As a result the trees were made very much cleaner by the spraying, and the work proceeded at a greater pace, owing to the wide and powerful cone of spray produced. On visiting what is probably the best fruit farm in this country, a few years ago, I was surprised to see a spraying machine working at over 300lb pressure and found that the grower attributed to this fact much of his marked success in controlling pests and diseases. He was able to obtain complete control of aphides by the use of nicotine without the addition of soap, a thing which I have never been able to do. *Market Fruit Grower.*

VEGETABLE GARDEN.

A SUCCESSION OF CAULIFLOWERS.

The Cauliflower is one of the most important crops of the vegetable garden, and many gardeners are required to produce a constant supply of heads at all seasons of the year.

To ensure a succession all the year round, it is necessary to rely on what are generally termed Broccoli, which are really only hardy varieties of the Cauliflower, the true Broccoli being the Sprouting Broccoli, of which there are both white and purple forms.

The soil for Cauliflowers, both as regards firmness and richness, should vary according to the season when the plants mature; those that do not have to withstand the winter should be planted in fairly rich soil to ensure that the plants make quick growth. On the other hand, varieties required to withstand the winter should be planted in very firm ground, but not too rich, and preferably land from which a crop has just been cleared. No digging is needed or other preparation of the ground, beyond cleaning the surface of weeds.

For the earliest supplies a sowing should be made about the first week in September in the open, the seedlings wintered in frames and planted out about the end of March or early April, or even earlier if some protection can be given the plants until the weather is favourable.

If desirable, a percentage of the plants from this batch may be matured in frames. A valuable variety for this purpose is Feltham Forcing.

Those planted in the open will furnish supplies from early June, the following varieties forming a good succession:—First Crop, an excellent variety requiring very little space to develop, followed by Improved Snowball and Magnum Bonum, for mid-summer, and a little later seeds may be sown under glass early in February and treated as half-hardy annuals, planting out the seedlings when they are thoroughly hardened. Purity and Improved Large Erfurt are suitable for this purpose. During April and early May sowings may be made in the open of the varieties All-the-Year-Round, Eclipse and Autumn Giant, thereby extending the supply well into the autumn. Special mention should be made of the excellent and most reliable variety, All-the-Year-Round.

To continue the sequence, the hardier type is used. These are sown in the open ground at intervals from about mid-March to the middle of May, according to their season. The varieties Michaelmas White, Veitch's Self-Protecting Autumn and Winter Mammoth will provide heads until Christmas or even a little later, in the order of their names.

For the next three months Early Springtide, Snow's Winter White, Leamington and Knight's Protecting will maintain a succession. It is advisable not to depend on one particular variety for this section, as at this season plants are very slow in forming heads, but much will depend on the weather; frequently Leamington and a few others produce curds over a long period.

Later supplies are much easier to produce, and the heads of these late sorts are much larger and quicker in developing than others. A large number of good varieties may be grown for this purpose, amongst them April, Preston White, Cattell's Eclipse, Edinburgh Market, Edmonton and Late Queen.

Latest supplies may be obtained by growing Methuen's June, which will form the connecting link with the earliest varieties. It does not follow that all these varieties are necessary, or do equally well in all localities, but they offer a selection from a large number grown at Wisley under identical conditions on two separate occasions. It will be noted that a good number are old varieties, which seem to hold their own in competition with those of more recent introduction. *J. Wilson, Wisley.*

FRUIT REGISTER.

PEAR CHARLES ERNEST.

Although this Pear is not quite of the first-class, it is well worth planting, for the somewhat large fruits possess white, melting flesh, are very sweet and well-flavoured, and moreover, the tree is fertile and hardy.

The fruits are large, something after the style of those of Pitmaston Duchess, oval-pyriform in shape, and coloured yellow, with a faint red flush.

Of upright growth, the tree makes an excellent bush, or it may be grown as an espalier or cordon.

This Pear is in season from October to November; it was introduced by a French firm of nurserymen somewhere about 1880.

APPLE THE QUEEN.

This excellent culinary Apple has much to recommend it; it makes an excellent bush or pyramid on the Paradise stock and is a regular, if not a heavy, cropper.

The fruits are large, flat and extremely handsome; yellow, boldly striped rosy-red. The flesh is white and of rather acid flavour. The variety is in season from October till December. It is an excellent cooking variety and grand for exhibition. It was introduced by Mr. Saltmarsh in 1880 and is often listed as Saltmarsh's Queen. In the year of its introduction it received the First Class Certificate of the Royal Horticultural Society. It makes a very good orchard tree for home purposes, but owing to its soft flesh it is not very valuable for commercial purposes. *Ralph E. Arnold.*

PEAR BELLE JULIE.

This fine Pear was raised by Van Mons close upon one hundred years ago and named after his granddaughter. The variety is noted for its excellent cropping qualities.

Although its season is October-November and therefore coincides with some of the best varieties, it is, nevertheless, worthy of inclusion in a collection. It was one of the very few varieties that cropped freely at Wisley in 1925, having also cropped the year previously, and it again fruited heavily in 1926. Of upright growth, it makes a good bush. It is rather late to bloom, and the blossom is extremely pretty in the bud stage, being a delicate pink. The fruit is of medium size (rather inclined to come small if not well thinned), oval, even and regularly shaped; the eye is very distinct. The colour is a dull brown russet with a very slight flush.

Of good flavour, this Pear has the merit of rarely rotting in the centre. *J. Wilson, Wisley.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

Deep Trenching.—Much has been written, and doubtless much more will be written, on the subject of trenching. Various opinions are expressed as to the methods followed by well-known gardeners. To my mind, the reason there are these differences is that there are so many different soils, and to treat all alike would be to court disaster. I have had exceptional experience with soils, and I am of the same opinion as *G. D.*, when he questions Mr. Beckett's advice to bring the subsoil to the top, and I will go so far as to state that Mr. Beckett would not do so in a garden with a subsoil of yellow Sussex clay only a foot from the surface and with very little in the way of manure or leaf-mould at his disposal. I have had charge of a garden with such soil in Sussex and also at Bury St. Edmunds, the subsoil being simply gravel at fifteen inches from the top, and quite useless as top soil. This gravel was so hard that I had to use a pick to break up the bottom; a fork would not enter it. No matter what the subsoil is, it does pay to break it up, but in the great majority of cases it must be left at the bottom. I had a soil at Marks Tey that was the best I have had, with a heavy subsoil, but not clay, as in Sussex. It was possible to grow vegetables on such a soil large enough for any purpose with only ordinary bastard trenching. The soil here, at White Ness, has a chalk subsoil. I am breaking up the subsoil of quite a large piece of ground by bastard trenching, simply to bury rubbish. I think it is wrong to advise all and sundry to bring the subsoil to the top. *W. Parker, White Ness, Broadstairs.*

——I am entirely in agreement with the methods advocated by Mr. Beckett, but would like to add that I would advise further treatment where the subsoil is such as is described by *G.D.* I was previously in charge of a garden where seams of hard, blue clay, exceeded a foot beneath the surface, in fact, the subsoil was of such a nature that if one struck into it with a spade it made little impression. When taking over the appointment, my employer informed me that it had always been a matter of difficulty to get a supply of vegetables sufficient for the establishment. Having inspected the soil, I came to the conclusion that deep trenching, combined with simultaneous cropping was necessary, and accordingly decided to put this into practice, the necessary labour being forthcoming. Every plot was trenched to a depth of two-and-a-half feet to three feet and the subsoil brought to the surface. Lime was applied, also a heavy dressing of ash from the garden bonfire. The treatment was given annually, and every plot was rendered available for growing any vegetable desired. I did not experience a break in the supply after the first year, and the quality of the produce greatly improved. I attributed the success to the application of lime and ashes; everything available was burnt, including as much wood and soil as possible, and the quantity of ashes applied must have amounted to several tons in the course of time. The lime performs a double service, as by its action it not only releases the alkalies, potash and soda, but by rendering the clay more amenable to the fork and rake, ensures a fine tilth for sowing and planting, which otherwise is almost impossible. *G. Robinson, Gannow Hill Hall Gardens, Oswestry.*

Lathyrus tuberosus.—The note on this plant by Mr. Briscoe (p. 73) is interesting, as it establishes a new habitat for the plant, which is undoubtedly rare in a wild state in this country. As a garden plant, however, it is not so uncommon. I found a stock of it at Belvoir Castle when I took charge there in 1894, and I left a good stock when I retired in 1917. It is a very graceful plant, and did not travel about in the stiff clay at that place, but was generally admired by all who saw it growing. I do not, however, consider it a suitable plant to place on rockwork. Other species of Lathyrus worthy of a place in all herbaceous borders are L. cyaneus, L. pubescens, L. roseus and L. rotundifolius. *W. H. Divers, V.M.H.*

SOCIETIES.

ROYAL HORTICULTURAL.

February 22.—A particularly bright exhibition greeted the Fellows and visitors who attended the Royal Horticultural Society's Hall on this date. Spring flowers were very much in evidence, both Daffodils and Tulips, as well as gently forwarded alpines and hardy shrubs contributed to the attractions. Cyclamens were particularly well shown, Messrs. Sutton and Sons' fine display filling one end of the hall. Carnations provided an attractive feature, as did the Camellias from Devonshire. Orchids, though fewer than at the previous meeting, were shown freely.

Novelties were few in number, the Orchid Committee granting three, and the Floral Committee three Awards of Merit.

We were glad to notice that one table had been set aside for the display of rare and interesting plants amateurs may like to show. We hope advantage will be taken of this opportunity.

Orchid Committee.

Present : Sir Jeremiah Colman, Bt. (in the chair), Mr. R. Brooman White, Mr. Fred J. Hanbury, Mr. Flory, Mr. A. Dye, Mr. H. G. Alexander, Mr. F. E. Shill, Mr. Fred K. Sander, Mr. Stuart Low, Mr. Wilson Potter, Mr. R. Ashton, Mr. T. Armstrong, Mr. H. H. Smith, Mr. J. Cowan, Mr. Chas. H. Curtis, Mr. A. McBean, Mr. H. T. Pitt and Mr. Gurney Wilson (Hon. Sec.).

Awards of Merit.

Dendrobium Renown var. Armstrongiae (*nobile var. Sir F. W. Moore × Queen of Gatton*).—One of the most richly-coloured Dendrobiums we have ever seen. The flowers are of fine form and good size ; sepals and petals deep purple ; lip deep rose-purple with a large purple-brown throat surrounded by a ring of palest buff. Shown by Messrs. Armstrong and Brown.

Cymbidium Erica var. Orbis (*grandiflorum × Pauwelsii*).—A large-flowered form with light green sepals and petals of excellent substance ; lip white with brown markings on the green-tinted margin. A very effective Orchid. Shown by Messrs. Sanders.

Cattleya Prince Shimadzu var. Springtide (*Tityus × Hardyana*).—A lovely Orchid with broad white petals and narrower sepals ; the wide, flattish lip is light yellow, with purplish Picotee-edge and bright, light purple stains on the white ground of the apical portion. The flower shown was of large size and fine substance. Shown by H. T. Pitt, Esq., Rosslyn, Stamford Hill.

Groups.

A bright and attractive group from Messrs. Charlesworth and Co. arrested attention by reason of the numerous arching spikes of Odontoglossums it contained ; a few of the best of these were O. Cordoba, O. Prince Edward, O. citrinum, O. eximium, O. Toreador and O. Eros. Miltonia Lyceana was shown in fine style, as were Laelio-Cattleya Serbia, Wilsonara Wendy, Odontioda Monica and Cynorchis Lowii—this last being rarely seen nowadays.

In the group submitted by Messrs. J. and A. McBean, Laelio-Cattleya Arcturus and Odontioda Bradshawiae were particularly fine in colour ; other good things were Cattleya Cowanii alba, Laelio-Cattleya Arcturus, L.-C. Linda, L.-C. Eunice (a L. anceps hybrid), and Odontoglossum Aphrodite, carrying a spike of twenty-eight flowers and buds.

H. T. Pitt, Esq. (gr. Mr. Thurgood), again contributed an interesting collection, and once more demonstrated his ability to grow and flower Epidendrum Endresio-Wallisii finely. Some good forms of Lycaste Skinneri were exhibited together with several excellent Cypripediums, including C. Robert Paterson, Cattleya Hassallii alba, Rosslyn var., and a selection of fine Cymbidiums.

Messrs. Sanders showed Cymbidium Erica Sander in variety, C. Louis Sander var. St. Alban, the large-flowered C. Albatross var. Verulam, Odontoglossum leucorhodum, the good old Dendrobium Wardianum, Platyclinis glumaceum and a freely-flowered example of Masdevallia igneo-Estradae.

Oncidioda Stuart Low (Oncidioda Cooksoniae × Oncidium macranthum) was the centre of attraction in Messrs. S. Low and Co.'s group. This is, in effect, a red-flowered O. macranthum, and a very attractive plant. the specimen shown carrying a lovely spike of about thirty-three flowers and buds. Cattleya Tityus, Potinara Mrs. Gratrix and Lycaste Balliae were also shown by this firm.

Messrs. Black and Flory exhibited a few Orchids, as also did Messrs. Cowan, the latter including Cattleya Enid var. Majestica, with Cirrhopetalum picturatum in their little group. Mr. Harry Dixon contributed a group containing Dendrobiums, coloured Odontoglossums, Cypripediums and Cymbidiums.

Floral Committee.

Present : Section A.—Mr. H. B. May (in the chair), Mr. J. F. McLeod, Mrs. Ethel M. Wightman, Lady Beatrix Stanley, Mr. H. J. Jones, Mr. D. Ingamells, Mr. Wm. Howe, Mr. J. M. Bridgeford, Mr. George Churcher, Mr. E. R. Janes, Mr. R. Findlay, Mr. W. H. Page, Mr. A. E. Vasey, Mr. W. B. Gingell, Mr. J. P. West, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mr. H. R. Darlington and Mr. James B. Riding.

Section B.—Mr. Charles T. Musgrave (in the chair), Mr. W. J. Bean, Mr. Reginald Cory, Mr. Mark Fenwick, Mr. G. Reuthe, Mr. G. Harrow, Mr. W. B. Cranfield, Mr. E. M. Marsden-Jones, Mr. F. G. Preston, Mr. C. Williams, Mr. E. H. Wilding, Mr. H. C. Baker, Mr. G. Yeld, Mr. R. C. Notcutt, Mr. T. Hay, Mr. Clarence Elliott, Mr. E. A. Bowles, Mr. W. G. Baker, Mr. R. D. Trotter and Sir William Lawrence, Bt.

Awards of Merit.

Crocus biflorus Alexandri major.—A handsome Crocus which was stated to be a seedling C. biflorus Alexandri. The rounded flowers have milk-white interiors set off by brilliant orange stigmas and golden anthers. The three outer segments are richly feathered with bright purple. Shown by H. Mc D. Edelsten, Esq., Hillside, Lindfield, Sussex.

Crocus minimus.—A pretty little species from Corsica. The interiors are bright purple with orange filaments. The three outer segments are attractively feathered with shining chocolate on a pale cream ground. The slender stems are heavily lined with dull purple. Shown by Mrs. W. R. Dykes, Bobbingcourt, Sutton Green, Woking.

Galanthus plicatus, Warham var. — This valuable Snowdrop was found growing in a cottage garden in Norfolk by the Rev. C. Digby. It is in every respect a greatly improved form of the Caucasian Snowdrop. Shown by Lady Beatrix Stanley, Sibbertoft Manor, Market Harborough.

Groups.

Cyclamens in large groups made vivid displays of bright colour, and these valuable greenhouse plants were shown in great excellence. Messrs. Sutton and Sons filled a large space at the end of the hall with an extensive collection of their well-known strains in splendidly grown plants. For the most part the plants were disposed in large circular groups of definite shades of colour, surrounded by fresh green moss, with an occasional pot of Fern, and a graceful background of Palms. Of the many lovely circles of Cyclamens we especially admired those of Salmon Pink, Salmon Scarlet, Bright Pink and Sutton's Firefly, while there was also a good selection of the crested varieties.

Near the entrance, Messrs. Puttridge, Ltd., again set up a magnificent group of their Caledonian strain of greenhouse Cyclamen. On this occasion most of the plants were set out in rectangular little groups of distinct colours. These also illustrated an admirably strain and high culture. As though to show how fine the plants were, single specimens were placed at intervals between the oblong groups, and these were of great merit.

The Duchess of Wellington (gr. Mr. H. Beckingham), Ewhurst Place, Basingstoke, contributed a valuable group of Eranthemum pulchellum, Cineraria stellata of rich blue colour, Primula malacoides in an admirable strain of large, rosy-flushed flowers, and Muscari botryoides. At one end of this excellent group there was a plant of the greenhouse Iris fimbriata.

Adjoining their Carnations, Messrs. Stuart Low and Co. set out good plants of Camellias, Hippeastrums, Toxicophlaea spectabilis and that old-time favourite stove plant, Thyrsacanthus rutilans. Their Carnations included good vases of Arnos Grove, Ruby Glow and Daphne. Messrs. Allwood Bros. included vivid flowers of Laddie and Topsy in their collection of Carnations, while Messrs. C. Engelmann, Ltd., had equally good vases of Circe Improved, Carola and other useful varieties.

An interesting collection of shrubs displayed by Messrs. Robert Veitch and Son included a collection of named Camellias of planting size. These were in full bloom and included Lady Buller, a variety with large red and white flowers; Mrs. Wm. Thompson, large white ; and Kimberley rich cardinal. There were also many double-flowered sorts of which Preston Rose, noblessima and althaeflora were the most attractive. Several distinct species of Hamamelis and Erica lusitanica were also well represented.

The collection of forced shrubs well arranged by Messrs. L. R. Russell, Ltd., included Azalea mollis and A. indica varieties, several floriferous species of Pyrus and Prunus and the fragrant Boronia megastigma.

Messrs. R. Gill and Son showed many large trusses of Rhododendron Cornubia of vivid colouring, several useful varieties of R. arboreum, a large number of spathes of Richardia (Arum) africana, and their choice strain of St. Brigid Anemones.

A good variety of hybrid Rhododendrons was also displayed by Mr. G. Reuthe, who associated them with Camellias, Heaths and sprays of Conifers. In front he had a collection of alpines, particularly of Saxifrages and Crocuses.

In a well-made rock garden, Messrs. Wm. Cutbush and Son planted goodly breadths of various Crocuses, Primulas, dwarf Ericas, Japanese Azaleas and Brooms, with a background of foliage shrubs lightened with an occasional Pyrus and Wistaria.

An attractive collection of early spring flowers was set up by Messrs. Barr and Sons. They included excellent Crocuses, particularly C. purpureus grandiflorus, of large size and beautiful colouring, Helleborus colchicus atrococcinius, H. Frau Sophie Froebel and the white Christmas Rose. At the back were disposed pots of good Narcissi, Dicentra spectabilis and other border flowers, with floriferous bushes of Forsythia spectabilis.

The Central Garden Supplies Co. showed Ericas, hardy Cyclamens, Tulips, Primulas and other spring flowers with dwarf Conifers. Crocuses of many sorts were attractively shown by Messrs. Waterer, Sons and Crisp, with Tulips, Primroses, Saxifrages, Iris reticulata and a good background of shrubs. Saxifrages were freely shown by Messrs. M. Prichard and Son, and they also grouped Crocuses and the dainty little Sisyrinchium grandiflorum. Blue Primroses were again well arranged by Mr. F. G. Wood, who associated them with Iris unguicularis, Snowdrops and Crocuses.

With good plants of Saxifraga oppositifolia splendens, S. Irvingii and S. Burseriana Messrs. Tuckers, Ltd., showed the attractive growing Thymus erectus. A lovely collection of spring flowers was arranged by Messrs. J. Cheal and Sons. Crocuses and Saxifrages were plentifully grouped, while Primula denticulata, Iris reticulata and Blue Primroses were also of merit.

Massed blooms of many spring flowers arranged by Mr. G. W. Miller made a bright display. He had large numbers of Polyanthuses and Primroses, with Daffodils, Tulips and Crocuses. The Horticultural College, Aldersey Hall, Cheshire, had a large quantity of well-grown plants of Iris reticulata.

A highly creditable exhibit of alpines in pots and pans was made by C. J. Kirch, Esq. (gr. Mr. J. Wall), Edenhill, Beckenham. These were well-grown plants, and some of them of exceptional size. His principal sorts were Saxifraga Grisebachii, S. Jenkinsii, S.

Burseriana Gloria, S. B. major, S. kestoniensis, S. apiculata, Primula Winteri, Bulbocodium vernum and various pretty Crocuses. Primula Winteri was very well shown by Messrs. BAKERS, LTD., who also had good examples of Rhododendron praecox, Dicentra spectabilis and other border plants associated with dwarf alpines.

Saxifrages of various sorts were shown by Mr. CLARENCE ELLIOTT and in goodly quantities of each sort. He also set out pans of Eranthis, Primulas and Crocuses. Pots of well-grown Galanthus Atkinsii and G. byzantinus were shown by CHARLES T. MUSGRAVE, Esq., Hascombe Place, Godalming, Surrey. The MISSES ALLEN-BROWN and Mr. J. J. KETTLE staged many vases of fragrant Violets and Mr. J. KLINKERT set out a collection of Topiary specimens.

There were the customary exhibits of paintings of flowers and gardens cenes, and Mrs. BROOKE showed herbarium specimens of Swiss flowers collected in the Upper Rhine Valley. These were dried in hot sand in 1889, and in a few instances still retained some of their original colouring. Miss WINIFRED M. A. BROOKE staged valuable drawings and colour representations of various useful and injurious insects.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the chair), Mr. G. W. Leak, Mr. Wm. Poupart, Mr. C. W. Needham, Mr. John W. Jones, Mr. G. W. Churcher, Mr. F. Barchard, Mr. F. A. Secrett, Mr. Charles H. Curtis, Mr. Peter R. Barr, Mr. Alfred W. White, Mr. W. B. Cranfield and Mr. Simmonds (Secretary).

GROUPS.

On the present occasion the Spring Garden, arranged by Messrs. CARTER AND CO., was in the form of a long border of Tulips, edged with floriferous little Heaths set in fresh, green moss. The Tulips were all of the early Dutch type, and they presented a glorious display of glowing colours. The chief varieties were Sir Thomas Lipton, rich dark cardinal; De Wet, glowing orange; Vermilion Brilliant, Augusta, of fascinating pink flushing; Mon. Trésor, rich yellow; Van der Neer, purple-shaded; and the well-known Keizer's Kroon. This admirably arranged exhibit was completed by a neat background of Yews and other evergreens.

On a large expanse of low tabling, Messrs. R. H. BATH, LTD., exhibited a collection of spring bulbs, grown in ornamental bowls of fibre. These were very successful, and included many Narcissi, particularly Homespun, Crystal Queen, Sir Watkin, Spring Glory and Golden Spur, with several examples of the Tazetta varieties. Chief amongst the Tulips were brilliant bowls of Ibis, Fred Moore, Mon. Trésor and Vermilion Brilliant. They also had good pans of Hyacinths and Crocuses.

A collection of early forced Poeticus Narcissi growing in ornamental earthenware pans, made by Mr. F. A. SECRETT, attracted a deal of attention. The varieties were Red Rim, Wide Wing, Barbellion and Winnie Weeden.

Fruit and Vegetable Committee.

Present: Mr. J. Cheal (in the chair), Mr. G. F. Tinley, Mr. W. Poupart, Mr. P. C. M. Veitch, Mr. J. C. Allgrove, Mr. E. Beckett, Mr. A. Bullock, Mr. W. H. Divers, Mr. W. F. Giles, Mr. E. Laxton, Mr. H. Markham, Mr. A. Metcalfe, Mr. E. A. Newby, Mr. T. Pateman, Mr. H. Prince, Mr. P. D. Tuckett, Mr. A. Poupart and Mr. G. Woodward.

An unnamed seedling Apple was shown by Messrs. JAMES CARTER AND CO. The fruits were very much like those of Annie Elizabeth, but in shape, and especially at the base, they resembled a coloured form of Bramley's Seedling. It is a very imposing looking fruit, but some considered it was too near Annie Elizabeth to be distinct, although the shape was certainly different from that variety. The variety was recommended for inclusion in the trial of commercial fruits at Wisley.

Mr. GILES submitted some Tangerine Oranges which he had brought from La Mortola, for the consideration of the Committee. These Oranges were of excellent quality and much superior to those that are packed green and ripened during transit. The Secretary was requested to send a message of thanks to Mr. Braggins for his kindness in sending the fruits to the Committee.

THE following awards have been made to the undermentioned vegetables by the Royal Horticultural Society after trial at Wisley.

Celeriac.

AWARDS OF MERIT.

Snowball and *Giant Ball*, both sent by Messrs. HEINEMANN, Erfurt.

HIGHLY COMMENDED.

Close Planting, sent by Messrs. A. DICKSON.

Garden Swedes.

HIGHLY COMMENDED.

Early White Selected, sent by Messrs. BARR AND SONS; White Smooth, Yellow Neckless, Early Yellow and Perfection Purple Top, the last four sent by Messrs. DICKSON AND ROBINSON.

COMMENDED.

Laing's Garden, sent by Messrs. J. KELWAY AND SON; Garden Selected, sent by Messrs. DOBBIE AND CO.

Artichokes.

HIGHLY COMMENDED.

Fuseau (Helianthus tuberosus), sent by The Hon. VICARY GIBBS.

READING AND DISTRICT GARDENERS'.

THERE was an excellent attendance at the fortnightly meeting of this Association, on Monday, February 7. Mr. J. R. Lloyd presided.

The subject for the evening was "The Vine," and this was dealt with in a most practical lecture by Mr. A. G. Nichols, Reading, who was for many years gardener at Strathfieldsaye. The various points touched upon by the lecturer were suitable houses, borders and rooting mediums, planting supernumerary vines, temperatures, ventilation, moisture, pruning and training, stopping, setting the fruit, thinning, watering, cracking and splitting of the berries, diseases, insect pests, propagation by eyes, cuttings and layers, and varieties. An exceedingly interesting discussion followed the lecturer's remarks.

In the competition for three dishes of vegetables some excellent produce was staged. In class I (open) the first prize was awarded to Mr. J. WYNN, Hammonds Gardens, Checkendon, whose Parsnips were extra fine; the second to Mr. A. H. DOW, Chalcot Park Gardens; and the third to Mr. C. S. CLACY, Sidmouth Grange Gardens. In Class II (amateurs), Mr. F. PRIEST, Westbourne Terrace, Reading, was placed first, and Mr. T. F. PACKER, Collis Road, Reading, second.

ROYAL SCOTTISH ARBORICULTURAL.

THE annual general meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on February 4. Sir Hugh Shaw Stewart, Bart., C.B., of Ardgowan, the President, occupied the chair, and there was a good attendance, including Lord Lovat, Mr. Robinson and other members and officials of the Forestry Commission.

The Chairman welcomed Lord Lovat, who was about to take up a new post in the Government, and invited him to address the meeting. After referring to the planting programme, Lord Lovat stated that the Commission had carried out a census of the woodlands of England and Scotland, which had taken five years, and that the figures would be available very shortly. He was sure that when they saw these figures they would be surprised at the areas of timber that were cut down and had not been replanted, at the proportion of what he might call uneconomical woods out of the three million acres which existed, and at the small area of mature Conifers which existed in Great Britain. He also referred to the investigations which had been commenced regarding peat areas, and stated that they hoped to treat successfully for planting a good many types of this material which had not been successfully dealt with in the past.

In his address, which was entitled "British Forestry: Some deductions from the Past and some Hopes for the Future," Sir Hugh Shaw Stewart said that no attempt at forestry, as we knew it, was made until the first quarter of the eighteenth century. In 1738, the second Duke of Atholl commenced to make extensive plantations of the European Larch. Little more than one hundred years ago extravagant expectations were held out regarding forestry, and in the failure of these sanguine hopes they might find some explanation of the neglect of forestry by their immediate predecessors. But there were some brilliant exceptions, including Mr. Munro Ferguson (now Lord Novar). In the latter part of the nineteenth century he and other proprietors who had studied Continental forestry methods devoted much of their energy and skill to the practice of these methods at home on a considerable scale, and had it been possible in those days to introduce the new trees in such quantities as to plant them in forest formation, they would have learned lessons that they were now only beginning to apprehend. The fashion of planting trees in isolation had led many planters to wrong conclusions. One was the fallacy that in order to prevent undue spread of branch formation they should rush to the other extreme and crowd them in the densest formation, a wrong conclusion, as he believed it to be, which received a great impetus from Mr. John Simpson's book, *The New Forestry*, published in 1900.

Sir Hugh said that the work of the Forestry Commission had already made a great mark in the forest history of the twentieth century, and that the explanation of the success was due to the composition of the Commission, and especially to the personality of its first Chairman, Lord Lovat. The apprehensions of some landowners who hesitated to replant areas felled during the war and after might be removed when it was realised that an area of land properly planted contained a far higher prospective value than such land left derelict and waste. In referring to death duties, he said these only fell heavily on an estate in a case where the heir chose to make a heavy felling in order to pay the death duty, or for some other special purpose.

In the course of the discussion, Mr. A. D. Richardson said that he was absolutely opposed to wide planting, and he thought the Society had seen the last of this when in 1895 they went to Prussia, where they saw some of the best-managed Coniferous forests in Europe, if not in the world. They had first to lay the foundation of the tree, and for this they must have proper density and branch suppression at a very early age. If they planted Douglas Fir at eight feet apart the side branches would not die for twenty years, and they would hold on for another twenty years, with the result that they would get a mass of rough timber which would not be worth more than twopence per cubic foot, whereas if they were closely grown it might be worth one shilling per foot.

The President, in reply, stated that for commercial timber they had found it better to have the planting width eight feet. Professor Borthwick and Mr. Robinson, the technical member of the Commission, supported the President's view, and the latter stated that the tendency was to plant wider, and the only reason why he did not plant wider was lack of courage.

Sir Hugh Shaw Stewart was re-elected President, and Mr. J. H. Milne Home was elected to the vacant Vice-Presidency. Mr. R. Angus Galloway, M.C., B.Sc. (For.), was elected Joint-Secretary and Treasurer, along with Mr. R. Galloway, who was re-elected. It was agreed to have an excursion to Belgium at the end of June.

At the close of the proceedings, Professor Borthwick was presented with a writing table and chair made from Scots-grown Laburnum in recognition of his services as honorary editor of the *Transactions* of the Society for the past fifteen years. The presentation was made by the President on behalf of the subscribers.

ROYAL CALEDONIAN HORTICULTURAL.

THE ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on February 1, Mr. W. J. Thompson, President, in the chair.

Mr. Wm. Cuthbertson, V.M.H., gave a lecture entitled "Horticulture at the Cross Roads." The point at which we had arrived, he said, was not by a direct road, and the great cross-road was the war. The glory of horticulture had, to a large extent, departed, and many of the fine private gardens had become market gardens, only a small proportion of the larger establishments being kept up on the former scale. But as good work was being done to-day in horticulture as ever before, although it was not, perhaps, so apparent. He referred to the transformation which had been brought about by varying taste, such as in the Dahlia, Pansy and Viola, which were largely grown in the public parks in the United States; Carnations, of which the perpetual-flowering kinds were largely grown, while the Malmaisons had gone largely out of cultivation; Sweet Peas, in which further advances seemed almost infinitesimal; Roses, in which there was still plenty of room for improvement, and in which the interest was never greater than at the present day; and Daffodils. Mr. Cuthbertson also referred to several other topics, such as that commercial gardening was now resolving itself into two distinct lines, the edible and the non-edible, that there was a great spread of gardening among amateurs, and that articles on the subject were now appearing in the daily press.

The exhibits were: Mahonia (syn. Berberis) Bealei, from Corsewell Gardens, and Snowdrops and Ericas from Miss NICHOLSON, Wigtown.

BIRMINGHAM AND MIDLAND GARDENERS'.

AT the annual meeting of this Society the annual report and balance sheet were adopted. Dr. J. B. Elliott, of the University, Edmund Street, again kindly consented to act as President; Mr. J. Smith, Birmingham Parks Superintendent, was unanimously elected Chairman.

At the fortnightly meeting, held on January 25, Mr. J. Smith in the chair, Mr. H. Overton gave an interesting lecture on "A visit to the North Cape," illustrated with lantern slides. Landing at Bergen, the lecturer travelled up the coast via Trondgem, Tromso, Lingen and Hammerfest; the slides showed alpines growing in their natural habitat, in addition to scenes and places of interest.

——AT the general meeting of this Association held on February 7, Mr. J. Smith in the chair, Mr. C. W. Beeton, of Kings Norton, gave a lecture on the "Cultivation of Roses," dealing with exhibition and decorative varieties suitable for the Birmingham district. He recommended an open situation, deep digging, and the best oam obtainable, with manure well incorporated a foot under the surface. The methods of planting, staking and tying of standard and climbers were fully explained.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly meeting of this Society was held in the Royal Horticultural Society's Hall, on Monday, February 14, Mr. Chas. H. Curtis presiding.

Fifteen new members were elected. Two members withdrew interest from their deposit accounts sums amounting to £6 16s. 4d., while four members, being over the age of seventy years, withdrew amounts totalling £78 9s. 11d. from their deposit accounts, £87 4s. 7d. was passed for payment to the nominees of two deceased members. Sick pay for the month on the Ordinary side amounted to £127 6s. 8d., and in the State Section to £140 6s. 10d., while maternity benefits came to £10 0s. 0d. The sum of £33 10s. 0d. was granted to eight members towards dental and optical treatment, and numerous cases for relief were considered

A draft of the Annual Report was submitted and passed for presentation to the Annual Meeting, which is to be held on March 14.

KINGSTON AND SURBITON CHRYSANTHEMUM.

THE annual meeting of this Society was held on the 17th ult. The President, G. C. Hodgson, Esq., occupied the chair. The report of the Committee for 1926 showed steady progress, but the balance of £9 3s. 6d. is less than last year owing to a falling off in subscriptions. The Society possesses five valuable Silver Cups. The date of the show for this year was altered to Wednesday, November 9, instead of November 2, as previously announced.

Mr. W. H. Divers, V.M.H., was reappointed Secretary, and the Committee was re-elected.

CARDIFF AND DISTRICT GARDENERS'.

A WELL-ATTENDED meeting of the above Association was held at the Queen's Hotel, Cardiff, on the 18th inst; Mr. J. Hall occupied the chair. Mr. C. Wall, Melrose Nurseries, gave a lecture on "The Culture of the Cyclamen." Mr. Wall showed many fine blooms of Cyclamens and a well-flowered plant of his own strain to illustrate his method of culture. The first and second prizes, offered for three plants of Cyclamens were won by Mr. Jones and Mr. Bullock, respectively.

Obituary.

Octave Burvenich.—We are very sorry to learn of the recent death at Ghent, at the age of sixty-seven, of M. Octave Burvenich, the Curator of the Botanic Garden of Ghent, and formerly professor at the State Horticultural College in the same city. Those who have been associated in any official capacity with the Ghent Quinquennial Shows will remember M. Burvenich, and deeply regret that his presence will not again grace these functions.

Mrs. J. H. Goodacre.—We learn with regret that Mrs. Goodacre, widow of Mr. J. H. Goodacre, who was for upwards of fifty years gardener at Elvaston Castle, recently passed away at the advanced age of seventy-five years. Mrs. Goodacre was an ardent Church worker, and invariably undertook the floral decorations at Elvaston at Easter and other festivals.

Henry Jones.—There passed away at Norwich, on February 19, another of the old-time, well-known East Anglian gardeners. For sixty-two years Mr. Henry Jones had been in the service of the late Jeremiah James Colman, Esq., and his daughters. Although of a somewhat retiring disposition, Mr. Jones was very keen in his profession, as was evidenced by the quality of the produce he grew at Carrow. His ideas of outside planning and laying-out of new borders were very pronounced and effective, and when the opening up of the old ruins of Carrow Abbey was in hand he used his skill to great advantage in adopting and harmonising plants with the ancient surroundings. Though for many years he has not been an exhibitor, his services up to quite recently were sought as a judge at important local shows. When he had completed fifty years' service at Carrow he wrote a brief autobiography of himself, in which he mentioned all the gardeners that have served under him, and gave a list of all the trees in Carrow Abbey grounds. *H. P.*

Ludwig Radlkofer.—We regret to learn that Dr. Ludwig Radlkofer, until recently the Director of the Royal Botanical Museum at Munich, has died there, in his ninety-eighth year. Born there in 1829, he graduated at the local University, and at thirty years of age was appointed to a professorship, which has lasted ever since. His chief contribution to botanical study lay in introducing anatomical methods, and his published works, were many. He was a Fellow of the Linnean Society of London.

ANSWERS TO CORRESPONDENTS.

FOLIAGE OF VARIOUS PLANTS DECAYING.—*J. T. W.* From the specimens you sent us of Primulas, Pelargoniums and Cinerarias, it would seem as though you have grown them in an excessive amount of atmospheric moisture, for they all appear to have simply damped off. Probably you were unable to obtain sufficient fuel during the coal strike to keep the house warm enough for the air to circulate freely. Take off all decayed leaves and stand the plants well apart. Open the ventilators of the house on favourable occasions to keep the air drier and in circulation. Damp in winter is a greater enemy to all these plants than cold.

FUNGUS ON AN AZALEA.—*E. T.* The foliage you sent is affected with the fungus Exobasidium rhododendri. Gather and burn all foliage showing the gall-like growths. It has been found that if the galls are removed and burnt before they have developed colour the plants will be free from attack in the following year.

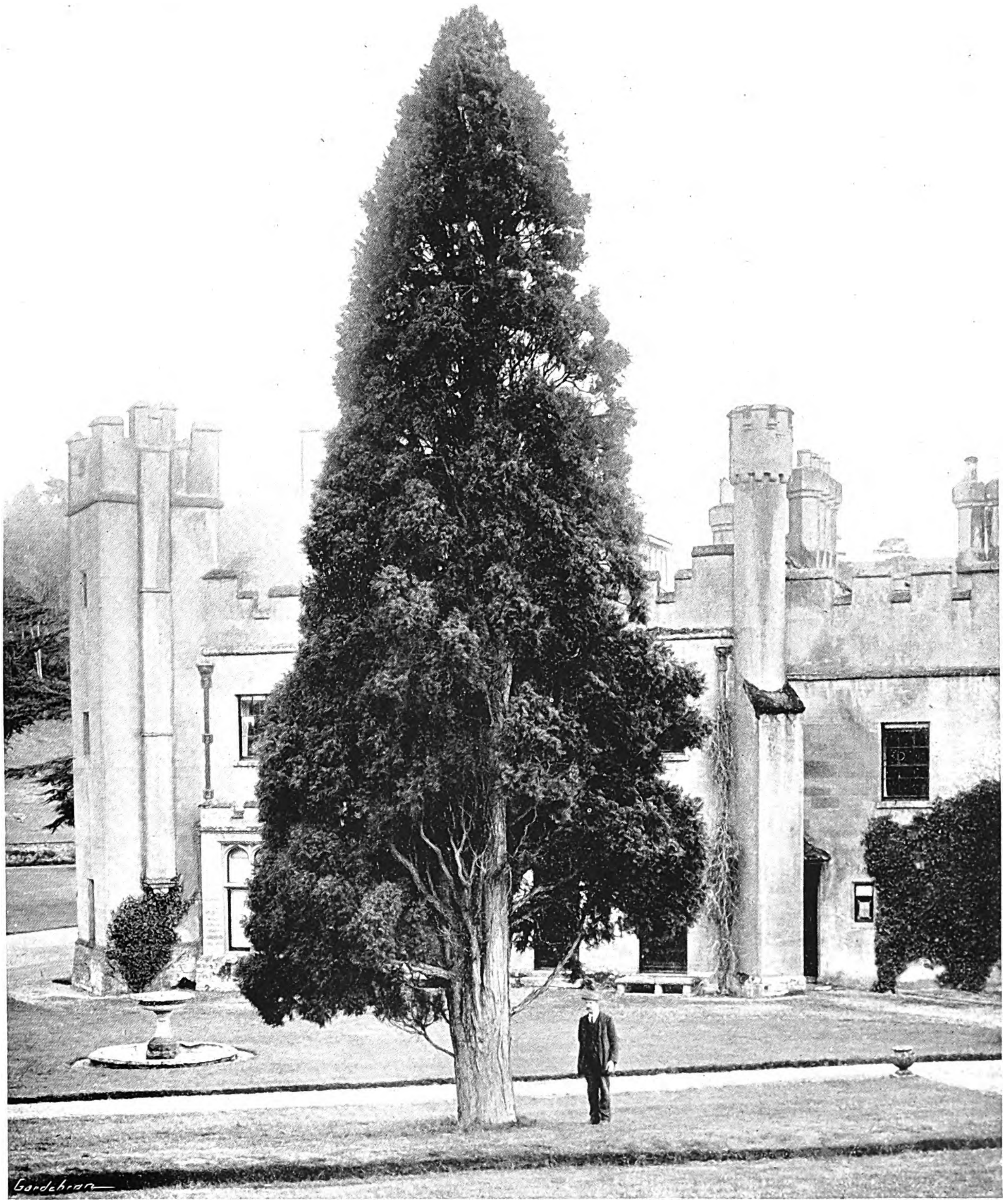
HIPPEASTRUMS AND GRIFFINIA HYACINTHINA.—*Sir John T.* (1) Hippeastrum procerum (syn. H. Rayneri) is an evergreen species, and should not be dried off completely at any time, although it should be kept on the dry side during the winter. It must be regarded as a difficult plant under cultivation, as it seldom flowers except from newly-imported bulbs and, as a rule, it has not proved long-lived in cultivation. It probably does best when planted out on an elevated and well-drained bed, in which the roots can ramify amongst a mass of rubble mixed with a little soil, as this rooting-medium somewhat approaches its natural conditions, where it grows on the face of high cliffs. A coloured supplement of this plant was given in *Gard. Chron.*, July 27, 1912, accompanied by a note by the late Mr. William Watson, on p. 73. (2) Hippeastrum equestre, succeeds under the same treatment accorded the garden forms of Hippeastrums, and although it may be grown without a rest, there is more chance of it flowering if it is gradually dried off during August and September. When dried off it may be kept in a temperature of 40° to 45°. The plant may be started into growth again early in the New Year in a house having a temperature of 50° to 60°, affording water very carefully at the roots until growth is active. (3) Griffinia hyacinthina is another beautiful plant, which, like many other bulbous subjects, has not proved over happy in cultivation, as it has proved to be short-lived in gardens, and after attaining flowering size, gradually deteriorates. After completing its growth the plant should be dried off for a time and started into growth again during February or March.

PEACH TREES UNHEALTHY.—*H. T.* From the brief description you give of your Peach tree dropping its buds, and your confidence that the roots have not been dry, there is only one other cause to account for the failure. Peaches, like all other fruits grown under glass, need a season of rest during the winter, and the necessity to use sufficient fire-heat to keep soft-wooded plants through the winter is undoubtedly the cause of the trouble. The wood sent is not well-ripened, and unless hard-wooded plants only are wintered in the house, you will have a repetition of the trouble. Pay careful attention to watering the roots, syringing the trees and ventilating the house.

VIOLET PLANTS UNSATISFACTORY.—*F. J. B.* It is impossible for us to say what the conditions of the plants were when you received them from the nurseryman, and it is not fair to expect us to give an opinion on the dried-up specimens you sent us.

Communications Received. — J. H.—D. M. R.—G. B.—J. B.—W. A.—J. J.—A. E. F.—P. H. M., Berks.—C. F. S.—J. C. and C.—E. J. B.—J. C.—J. B. W.—C. E.—M.—E. B.—H. K.—Old Reader.

Supplement to the GARDENERS' CHRONICLE.



CUPRESSUS TORULOSA AT STANAGE PARK, RADNORSHIRE.

THE
Gardeners' Chronicle

No. 2097.—*SATURDAY, MARCH* 5, 1927.

CONTENTS.

Alpine garden—
  Arenaria Ledebouriana 160
Ancient Cottages, preservation of... ... 156
Apiary notes 166
Apples, stock and scion of 155
Books, notices of—
  Sanders' Orchid Guide 165
  Vegetables for Home and Exhibition... 165
  The Gardener's Year Book 165
Bulb garden—
  Iris Wedgwood ... 160
Daffodil fly, the ... 168
Daffodils for forcing, good 167
Daffodils, raising new 164
Florists' flowers—
  Border Carnations... 161
  New Carnations ... 161
Flower garden—
  Aquilegias 160
  Border Chrysanthemums 160
  Nepeta Mussinii ... 160
Freesia, a new disease of 166
Fruit garden—
  Biennial cropping in Apples 166
" Gardeners' Chronicle" seventy-five years ago 157
Gardens at the Ideal Home Exhibition ... 168
Indoor plants—
  Lantana 160
  Medinilla magnifica 160
Lathyrus tuberosus ... 167
Obituary—
  Airdrie, Mrs. D. ... 170
  Etterley, W. H. ... 170
  Potin, Julien ... 170
  Thomson, W. P. ... 170
Plants of special interest at Kew 155
Rose garden—
  Farrer's Threepenny-bit Rose 166
  The Rose trials at Wisley 166
Societies—
  British Mycological 169
  Manchester and North of England Orchid 169
Tennyson, in memory of 157
Thurgood, Mr. F. W.... 156
Trees and shrubs—
  Cupressus torulosa... 164
  Escallonia rubra pygmaea 164
Trenching, deep ... 168
Vegetable garden—
  Celery trenches ... 167
  Rhubarbs Tobolsk and Stott's Monarch 167
Wards, Mr. F. Kingdon, ninth expedition in Asia ... 162
Week's work, the ... 158
Wisley, notes from ... 163

ILLUSTRATIONS.

Carnation Sweet Anne Page 161
Chrysanthemums Mrs. J. Pearson and White Boy, a bed of 159
Dendrobium Renown var. Armstrongiae 157
Lettuces between Celery trenches 167
Thurgood, Mr. F. W., portrait of 156
Ward's, Mr. F. Kingdon, expedition 162, 163

SUPPLEMENT PLATE.
Cupressus torulosa in Stanage Park.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41.0°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 2, 10 a.m. Bar. 28.5. Temp. 50°. Weather, Fine.

Stock and Scion of Apples.[*]

THANKS to the pioneer work done at East Malling, fruit growers have been provided with a series of stocks for Apples, each of which possesses known and definite peculiarities. From the many categories of stock previously mixed up in hopeless confusion and described as Paradise, many different types have been sorted out, and the special peculiarities and virtues of each stock have been ascertained. This in itself is a notable achievement, and one of which British pomologists have good reason to be proud. Mr. Hatton who was, with Captain Wellington, responsible for this pioneer work has now carried his investigations a step further. By means of laborious and exhaustive observations of growth and cropping behaviour, he has demonstrated the overwhelming influence which kind of stock has on the growth and cropping of a given variety of Apple grafted or budded upon it. For full details of this arduous and valuable investigation, the current number of the *Journal of Pomology* must be consulted; but the salient facts are summarised here. In these experiments the influence of sixteen different stocks is described. Each kind of stock was raised or increased vegetatively, and hence all the members of one kind may be regarded as being to all intents and purposes identical with all the others of its kind. The scion budded or grafted on each of these stocks was Lane's Prince Albert. Elaborate measurements and records were kept each year of the growth and cropping performance of each of the large number of trees included in the experiment The records concern total wood growth, height, spread, girth, number of fruit spurs, of blossoms set and fruits produced. The results prove that these laborious observations were well worth while, for in no other way could the profound influence of stock on scion have been demonstrated, and in no other way could the intelligent nurseryman or fruit grower who seeks to make his art as perfect as possible, learn how he may achieve this worthy object. The extraordinarily great influence of stock on scion is best illustrated by a comparison of the growth and cropping behaviour of Lane's Prince Albert on the most dwarfing and on the most vigorous stock. On Type No. IX (Jaune de Metz) the trees made growth just five times as little as they did on the more vigorous stock, Type XII. The recorded ratios are: 46·9 to 233·2. A similar difference is exhibited in height attained, 132, 275; in spread of branches, 176, 278; and in girth, 109, 237. When, however, we turn to the cropping performance, a different picture is seen. Type IX formed on the average during the six years, 231 fruit spurs, set a relatively high percentage of its blossoms, and yielded (in the seventh year) an average of 112 fruits; whereas its more vigorous fellow (No. XII) produced an average of only forty-nine fruit buds, set a much lower percentage of its blossoms, and yielded only ten fruits. No doubt its fruitful time is yet to come, but evidently Type No. IX is the stock to use for fillers, that is to say, for interplanting between permanent trees to produce some returns in the early days of the orchard. No less interesting is the fact demonstrated by these experiments that the sixteen types of stock form a series which shows a gradually increasing vigour. Of these types, however, some seem to stand out conspicuously in combining vigour with fruitfulness. Thus Type No. II is twice as sturdy of growth as is Type No. IX, and about half as fruitful, but Type No. I, half as sturdy again as No. II, is just as fruitful. Thus though vigour of growth and fruitfulness are, as everyone believes, more or less incompatible qualities, this is not invariably the case for, as just shown, it is possible to find a stock which encourages a markedly vigorous growth and yet admits of a fairly high degree of fruitfulness. These observations are bound to prove of the greatest value to our nurserymen and to fruit growers generally. By studying them carefully and in detail, it is possible for the nurseryman to decide which are the stocks to use for the different kinds of customers who go to him for maiden or formed trees. There are stocks for all requirements, for the little garden, for the gardener who wants quick returns, and for him who is prepared to wait. To show how profitable may be the waiting period, Mr. Hatton has included a table (p. 11) indicating the number of fillers which may be used per acre and the yield to be expected. With Type No. IX there would be 504 fillers per acre, and they should yield in seven years 1,000 bushels of Apples. If Type No. II be used, the 268 fillers required would yield about 600 bushels, and so on. There is, of course, much still to do before science can fulfil the part it is destined to play as guide, philosopher and friend of the art of horticulture—but Mr. Hatton is pointing the way, by following which, science may ultimately play this worthy part.

Plants of Special Interest at Kew.—The small glasshouse, at the Orchid-end of the T-range, continues to attract its quota of visitors to the Royal Botanic Gardens, Kew. To the general plant lover it is the Cyclamens that are of most interest, and the older plantsmen who go there cannot fail to be delighted to see the original type plant with its perfectly-formed flowers. The type-written note which is placed by the group reminds the visitor that the proper specific name of the greenhouse Cyclamen is indicum, though it is more commonly known as C. persicum. The various colour varieties, which range from white, through rose-pink and salmon-pink to red and purple, and the different types of flower, all of which were obtained from C. indicum, are represented by good specimens of each colour and shade. In No. 4 house, known to the general public as The Conservatory, there is a more extensive collection of Cyclamens. These are all particularly well-grown plants, and we were pleased to see that so many plants of the Kew strain more nearly approximate the type in their beauty of form than is usual now-a-days, when the large-flowered sorts are more or less shapeless. As is right and proper in an educational establishment, the crested varieties are represented but, happily, by few plants. Next in garden interest to the Cyclamens, in the Special House, is the collection of Citrus fruits from the Italian garden of Commendatore Cecil Hanbury. These are the fruits which were exhibited recently at the R.H.S. Hall. A prominent notice warns the visitor that "These fruits have been treated with a poison"; no doubt a necessary precaution. There are various economic plants, such as the Clove (Eugenia caryophyllata), Tea (Camellia Thea), Paraguay Tea (Ilex paraguayensis), Coffee (Coffea arabica), Bread Fruit (Artocarpus incisa), Cacao (Theobroma Cacao), Chicle Gum (Achras Sapota), Quinine, West African Rubber, Cocaine, Ipecacuanha and Gum Balata.

Summer Show at the Birmingham Botanical Gardens.—After a lapse of many years, due to the incidence of the war, the Birmingham Botanical and Horticultural Society has decided to hold a three days' Flower Show at the Botanical Gardens, Edgbaston, on June 1, 2 and 3 next. Cups and medals will be awarded to trade growers and prizes and certificates to amateurs. It is proposed to engage a military band and to have a public opening ceremony each day. A committee has been formed and a meeting will be held at the Botanical Gardens, Edgbaston, on Friday, March 11, at 5.30 p.m., to which all interested are cordially invited. A schedule of prizes will be distributed so soon as possible; two Silver Cups have already been offered. Further information will be gladly given by Mr. T. Humphreys, Botanical Gardens, Edgbaston.

The Leaf-Cutting Bee.—Rev. George Birnie, B.D., Speymouth Parish Church, one of the most learned and erudite authorities on such matters in the north, in the course of a lecture on "Nature's Architects," delivered in the old cathedral City of Elgin recently, gave the following delightful pen picture of Megachile rosea, the Leaf-cutting Bee. The upholsterer, as the lecturer named it, is very selective of its material, preferring Rose leaves to everything else, only taking Birch, Rowan or Dog Mercury. when there is no Rose bush within half-a-mile The leaf-cutter is a very interesting subject to study. It scrapes a hole for three inches or so into a sand-bank facing south. Then it searches out a Rose bush, sometimes selecting one out of a hundred and taking no other. Its scissors consist of equally-formed mandibles or jaws, and when it lights upon the Rose leaf it takes the serrated part between its legs and with marvellous deftness and rapidity clips, it may be a perfectly circular or oval piece out, forcing its head along the cut till it reaches the point when only a tiny part remains unclipped. To prevent it breaking away, the insect, at the correct instant, sets its wings in motion, thus balancing itself as it completes the operation, when it flies away with the piece between its legs. Arrived at the hole it had scraped out, it rolls the piece up between its legs into a cylinder, and can then drag it into the small hole to lay the foundation of the thimble-formed case. One piece after another it brings, packing each into its place with its powerful legs and feet, the one always overlapping the other, until the case is completed, and then an egg is laid and provision made for the future little one in the shape of a pellet of pollen mixed with honey, usually from Thistles, which gives it a rosy colour. Then comes the marvellous piece of neat fitting. It may have to fly a quarter-of-a-mile from its nest to the favourite Rose bush, and there cuts out a perfect circle as a lid—the correct size—to close the egg in the case. Examination of these cases will discover the microscopic exactness with which the female leaf-cutting bee packs in her eggs and pollen pellets, not with one, but three, circular, perfectly-fitting lids. Then she proceeds with another, and another case, until she has three or four, end to end, the lid of the one forming the foundation of the next, and all this wonderful work is done in the dark!

---

[*] The Influence of Different Root Stocks upon the Vigour and Productivity of the Variety Budded or Grafted Thereon, by R.G. Hatton, East Malling Research Station. *Journal of Pomology*, Vol. VI, No. 1, February, 1927.

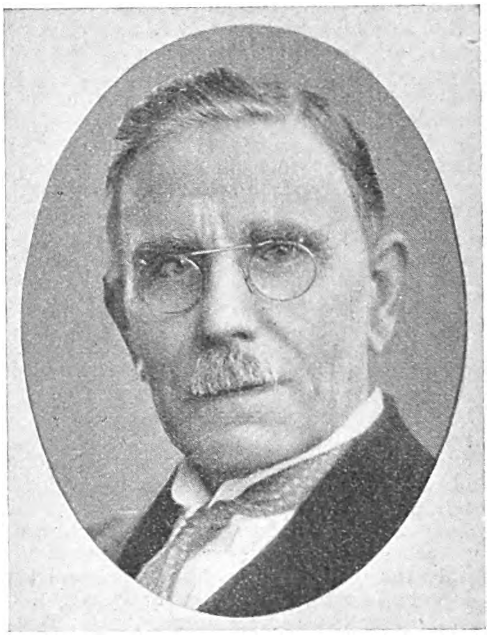
Seven Sisters Cliffs, Eastbourne.—We are glad to learn that the Seven Sisters Cliffs, and the Downs behind, have been saved for the National Trust. Mr. W. C. Campbell, of Eastbourne, is stated to have lent the remaining £5,000 of the £18,000 required to purchase the land, which was to have been used for building.

Fewer Apples and Pears from New Zealand and Australia.—The Empire Marketing Board has received a cable from the Director-General of Agriculture in New Zealand stating that the export of Apples to the United Kingdom during the coming season is estimated at 500,000 boxes and of Pears at 10,000 cases. Last season exports to the United Kingdom were 655,000 boxes of Apples and 9,400 cases of Pears. The Apple and Pear crops are lighter than usual in Australia this year. An unofficial estimate suggests an export of 1,400,000 boxes of Apples against 3,175,000 boxes in 1926. The shipping programme of Tasmania alone is for a total export of 1,151,000 boxes of Apples and Pears during the coming season against 2,147,000 cases of Apples last year.

Kew Trees for Canberra.—During the ceremonies at Canberra, the new capital of Australia, the Duke and Duchess of York will assist in planting various trees which have been sent out from the Royal Botanic Gardens, Kew. Around the new capital the conditions are too arid for any possible hopes of success, so the trees will be planted on the adjoining hillside. On December 20 last a consignment, consisting of eight Beeches, eight Oaks, eight Horse Chestnuts, six Elms, six Alders and six Cricket-Bat Willows, with a bundle of Willow cuttings, were sent per s.s. Balranald to Mr. Ward, the Curator of the Sydney Botanic Gardens, who will care for the trees in the meantime. There will be a ceremonial planting, and it is expected that the Duchess will plant the Elms, the Duke the Oaks, the Governor-General the Beeches, and the Prime Minister the Cricket-Bat Willows.

Retirement of Jakob Plohowitz.—Many English readers who have visited Vienna, and admired the beautifully designed and well-kept public gardens there, will be interested to learn that Herr Jakob Plohowitz, the head of the Parks Department, has just entered into retirement. His successor is Herr Fritz Kratochwjle, who entered the service of the Viennese municipality in 1903, and has worked his way up gradually to his present important position. He has also been, since 1923, General Secretary of the Austrian Horticultural Society, not an easy position and one that has called for considerable organising ability owing to the great difficulties experienced since the war.

Mr. F. W. Thurgood.—Anyone who can cultivate Orchids successfully and continuously for a period of twenty-eight years in London, deserves commendation for the skill and patience he exercises. Such a one is Mr. F. W. Thurgood, who has had charge of Mr. H. T. Pitt's fine collection of Orchids at Rosslyn, Stamford Hill, over the period named. Regular visitors to the Royal Horticultural Hall know how well and consistently the Rosslyn Orchids are exhibited there in a condition that would shame many growers who experience the brighter conditions and purer air of the country. Like many other successful cultivators, Mr. Thurgood has had a varied and wide experience, and this, coupled with keen powers of observation and a deep love for plants, has enabled him to grow Orchids where many another would fail. Deriving from a family of farmers, Mr. Thurgood chose horticulture as his profession and served as a boy in the gardens of Terling Place, Lord Raleigh's Essex estate. Here, and subsequently, he was employed in various departments of the garden, but it was Mr. Bowring's large collection of Orchid species at Forest Farm, Winkfield, that excited his enthusiasm. When Mr. Bowring's establishment was broken up, Mr. Thurgood entered service with Messrs. Sanders, of St. Albans, where he made the acquaintance of seedling Orchids and their needs. His next position was that of foreman to William Thompson, Esq., at Walton Grange, Stone, Staffordshire, where a splendid collection of Orchids was maintained in fine condition over a long period—a collection many of the older Orchid enthusiasts remember with pleasure. Three years later Mr. Thurgood took charge of the Orchids at Waddesdon Manor, the seat of the late Baron Ferdinand de Rothschild; here he remained three years before entering the service of Mr. Pitt, Stamford Hill. His employer is a great lover of Orchids and has a great affection for species as well as the showier hybrids. At Rosslyn there are specimens of Dendrobium Wardianum album, Odontoglossum grande, Pitt's variety, O. crispum, O. Londesboroughianum and Laelia Jongheana, which have been grown there continuously for five-and-twenty years, while the rare Eulophiella Elizabethae continues to thrive, and the rarer hybrid E. Rolfeae came into the collection in 1893. Mr. Pitt and Mr. Thurgood hold a remarkable record, as the Orchids they love so well have won about two hundred medals in London and Manchester. Moreover, the Rosslyn Orchids have won the Amateur Orchid Challenge Cup, a special Cup at Chelsea in 1926, and the Lindley Medal for Eulophiella Rolfeae.



MR. F. W. THURGOOD.

Wisley Trials.—The Royal Horticultural Society will carry out trials during this year of large-flowering Gladioli, alpine Phloxes, and Rhubarb. Three plants of each variety of alpine Phlox, and of Rhubarb, and ten (or five) corms of each large-flowering variety of Gladiolus should be sent to reach The Director, R.H.S. Gardens, Wisley, Ripley, Surrey (Goods via Horsley Station, Southern Railway), on or before March 31, 1927.

Crocus minimus, Dyke's variety.—At the meeting of the Royal Horticultural Society held on February 22, a very fine form of Crocus minimus, shown by Mrs. W. R. Dykes, received an Award of Merit, subject to the plant being given a varietal name. The variety has now been named "Dyke's variety."

Dischidia Rafflesiana. — This interesting "pitcher-plant" is the subject of an article, illustrated by an excellent photograph, in the February issue of *Gartenschoenheit*. The article, which is by Mr. J. A. Purpus, describes in detail the structure and cultivation of the species, which is a native of the Malay States and tropical Australia. The plant produces, in addition to normal leaves, hollow structures provided with apertures through which the moisture of the atmosphere gradually percolates, and fills the "pitchers." On the slender, thread-like leaf-pedicels little roots are formed, which reach into the pitchers, form a net-work there, and convey to the plant the life-giving moisture. The normal foliage is thick, fleshy, roundish or heart-shaped, and one-and-a-half to two cm. across; the pitchers are much larger, eight or nine cm. long by three or four wide, and so disposed as most easily to catch the atmospheric moisture, of which each holds about ten cubic centimetres. Often small organisms are drawn into the pitchers with the moisture, and drowned insects have been found there. Although the cultivation of this plant is not really difficult, it is rarely seen except in botanic gardens, and then usually as poor specimens, which last only a few years. They require a high temperature and atmospheric moisture, even in the winter, during their resting period. During the vegetative period frequent overhead sprayings with rainwater are necessary—in fact, Dischidia Rafflesiana may be treated almost exactly like Nepenthes. As they are climbers, and also root-climbers, they require a support to enable them to perform this function; a framework of rough rustic work, well-furnished with twigs on which some Polypodium fibre has been fastened, appears to be suitable. To cover the whole structure with Polypodium is likely to do more harm than good, as the roots ramble best over the bare wood. Once the roots are established, the plant makes rapid progress, and often develops a great number of pitchers in a few years. Mr. Purpus considers the best wood to use for the support is that of Robinia Pseudacacia, which is lasting, rough-barked, and not readily liable to decay.

Gardening Lectures at Chiswick.—A series of four lectures will be given at the Chiswick Public Library under the auspices of the local Library and Museum Committee. The dates, subjects and lecturers are as follow: March 17, Vegetables for Gardens and Allotments, by Mr. W. H. Johns, N.D.H.; March 24, Lilies and other Bulbous Plants, by Mr. John Weathers; March 31, Carnations, by Mr. Montague C. Allwood; April 5, Plants for Shady Places, by Mr. W. Stewart, Superintendent of the Chelsea Hospital Gardens.

Preservation of Ancient Cottages.—Many influential persons were present at a conference on The Preservation of Ancient Cottages, held on January 26, at the Royal Society of Arts. The Prime Minister, who presided, stated that it was difficult to contemplate the survival of the beautiful old cottages of England without realising that the whole of this architecture is one of the tributaries of the main stream of medieval craftsmanship which has come down to our time, and as such, is of inestimable value to us. We have to see if we cannot once again tap those springs of craftsmanship which has not flowed in this country for so long. It is not a hopeless task because craftsmanship lies dormant among our people. He said he is quite certain that if the right magician's wand were used it would spring again into fertile being throughout the length and breadth of the country. The Rt. Hon. Earl of Crawford and Balcarres, speaking on behalf of the Society of Antiquaries, said that no building which is used as a residence comes within the purview of the Ancient Monuments Act. The country cottage, therefore, except when abandoned and derelict, cannot be a candidate for support out of State funds under the Ancient Monuments Act. He said that the recent report issued by the Royal Commission on Historic Monuments of Huntingdonshire showed that in villages which were rather remote there were cottages dating back even to Tudor times. He also said that the Council for the Preservation of Rural England, which has recently come into existence, seeks to maintain the charm, the amenity and the intimacy of our English country landscape and the Council looks upon these old world cottages as something indigenous to the countryside, something racy of the soil, something which represents the gradual evolution and development of our race and worthy of preservation. It is hoped to treat these old cottages, assuming the structure to be sound, in such a manner as to ensure that after treatment the cottage on the one hand will preserve intact its original character, and on the other, that the cottage so far as sanitation and comfort are concerned, will be worthy of its occupants. The Rt. Hon. Sir Alfred Mond said that every old cottage and every beautiful thing which is maintained, must train the eye more and more to reject the ugly and unaesthetic, so that eventually people will not want to live in, or tolerate, ugliness, as a matter of course. The Committee is anxious to raise a fund of £50,000; a list of subscriptions read out by the Secretary of the Society, John Street, Adelphi, W.C.2, amounted to £1,855 13s.

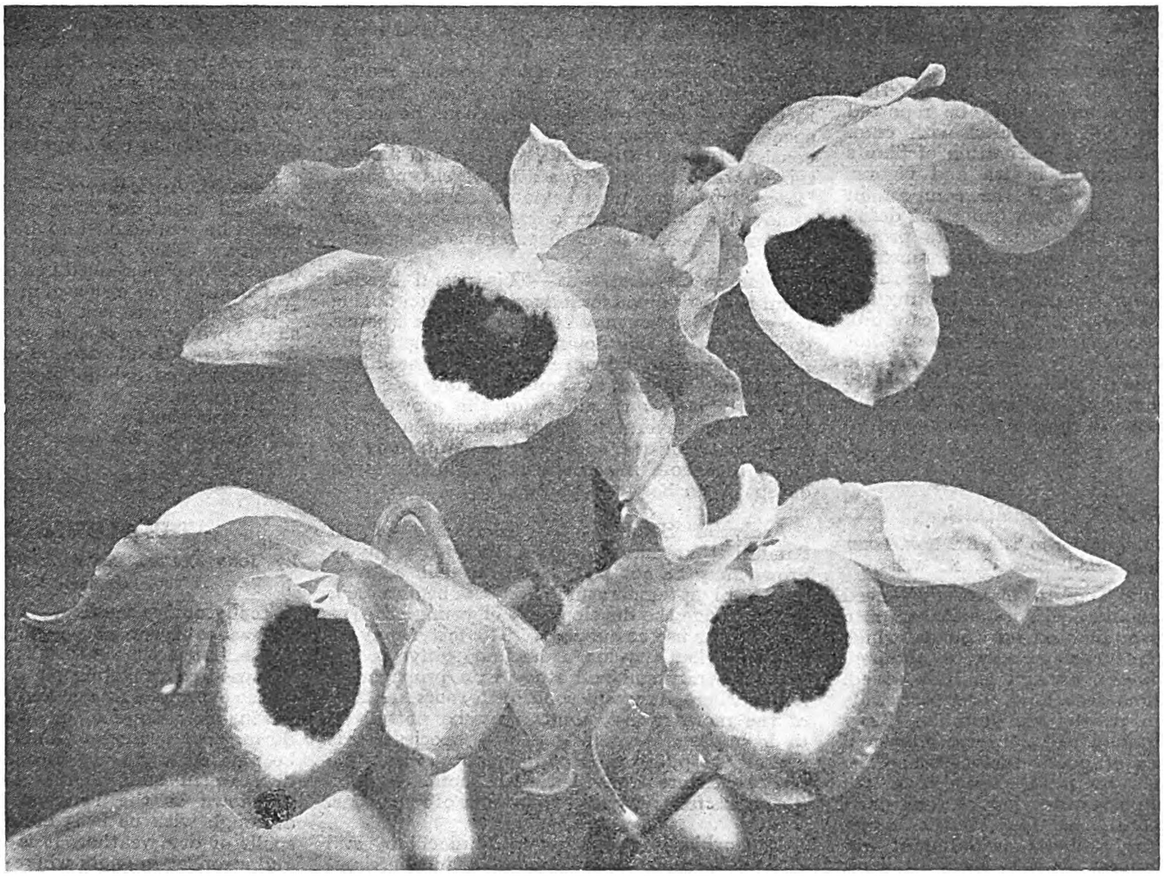


FIG. 77.—DENDROBIUM RENOWN VAR. ARMSTRONGIAE.

R.H.S. Award of Merit, Feb. 22. Flowers rich purple, rose and buff. Shown by Messrs. Armstrong and Brown.

(see p. 152).

Gardeners' Royal Benevolent Institution Festival Dinner.—Lord Treowen will preside at the eighty-second Annual Festival Dinner in aid of the funds of The Gardeners' Royal Benevolent Institution, on June 29. The Dinner will be held at New Princes' Galleries, Piccadilly.

In Memory of Tennyson.—Lord Tennyson has presented 155 acres of High Down near Farringford, in the Isle of Wight, to the National Trust in memory of his father, who in his late years walked on these Downs almost every day. The Downs command a magnificent view of the Freshwater country, and on the highest point is a beacon, erected to the memory of the poet. The land that has been gifted is to be known in future as Tennyson's Cliff and Down. The poet Tennyson went to Farringford in 1853, when he was forty-four years old, and his associations with Aldworth were in his later years. He was sixty years of age when he built his house at Farringford.

Contact Insecticides.—At the February meeting of the Association of Economic Biologists, Messrs. F. Tattersfield and C. T. Gimingham stated that in the course of laboratory and field experiments on contact insecticides an apparatus and technique have been devised for the quantitative study of the toxicity of contact insecticides, both to adult insects and to insect eggs, also that some relationships between chemical constitution, and toxicity in certain groups of synthetic organic compounds have been worked out. The results of the laboratory work have led to experiments in the field with certain compounds, highly toxic to insect eggs, which may prove to have practical value for winter spraying. The toxic properties of extracts of some tropical plants have also been studied.

Appointments for the Ensuing Week.—Sunday, March 6: Wakefield and North of England Tulip Society's meeting. Monday, March 7: Romsey Gardeners' Association's meeting: Tuesday, March 8: Royal Horticultural Society's Committees meet (two days); Horticultural Club Annual Meeting and Dinner; Jersey Gardeners' Society's meeting; Wimbledon Gardeners' Society's meeting. Wednesday, March 9: Sheffield Chrysanthemum Society's meeting; Pangbourne and District Gardeners' Mutual Improvement Association's lecture. Thursday, March 10: Ipswich Gardeners' Association's meeting. Friday, March 11: Orchid Club meeting; Royal Horticultural Society of Ireland meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Messrs. Chandler's Nursery, Vauxhall.*—Lovers of Camellias will be glad to learn that the extensive collection of this favourite flower, for which this nursery is celebrated, is now in full bloom. When we state that they form a bank, 160 feet in length, and some eight or ten feet deep, some idea will be gathered of the kind of entertainment which it may be expected a visit to so large a display will afford. Red kinds, as altheaeflora, Chandlerii, Woodsii, imbricata, etc., are abundant and fine, and the old double whites have flowered better this year than usual, few of the buds having dropped, a circumstance perhaps to be attributed to the mild winter having caused less fire-heat to be employed, and therefore to the air being more moist and congenial to the health of the plants. The whole collection is neatly arranged, and in excellent condition. *Gard. Chron., March* 6, 1852.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon,
Bletchley Park, Bletchley, Bucks.

Miltonia.—Many hybrid Miltonias have been raised during late years, and the introduction of bright colours into this family of plants makes them most desirable for the embellishment of the plant houses; although they are not suitable for use as cut flowers, it is remarkable how long these plants will remain attractive when in bloom when used for indoor decoration, provided they are suitably hardened by first placing them for some time in a cool house.

Repotting.—This work will now become general, as the different species will commence to develop roots and new growths, although, in a general collection there is some repotting that may be done at all seasons. A plant that is making new roots may safely be repotted any time, provided it is watered with care. The success attending the cultivation of plants depends entirely on their health and vigour, and no plant can thrive if the compost in which it is growing is decayed, hence the desirability of repotting each plant at its proper season. The provision for drainage must in all cases be ample, as no plant will succeed in a waterlogged and sour compost. In potting the plants the material should be placed carefully between the roots, making sure they are not crowded, but distributed regularly in the receptacle. Tall plants should be staked neatly to ensure their being held firmly in the soil, as a plant that moves in its pot cannot root satisfactorily.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Tomatos.—Young Tomato plants that need more root space should either be potted on into larger receptacles or planted into boxes, which I prefer, as far better crops may be obtained with the use of boxes, as well as time saved. Strong boxes, three feet long, one foot wide and the same in depth, are suitable. They should be well-drained and the crocks covered with rough pieces of good, turfy loam. The boxes should then be rather more than half filled with a compost consisting of four parts good, fibrous loam, one part burnt refuse from the garden fire, a liberal sprinkling of lime rubble and bone-meal, and a dash of soot. When placing the Tomatos in the boxes, it is well to have the soil on the dry side so that it may be made firm. Maintain a temperature of about 60°, and whenever possible admit a little fresh air in the house to keep the atmosphere dry and circulating. Endeavour to obtain short-jointed, fruitful plants. So soon as the flower trusses are well expanded and showing plenty of pollen, it is a good practice to give the plants a sharp tap each midday to assist fertilisation. By the time the fruits of the earliest bunch commence to swell, the first top-dressing should be placed over the roots, which will be showing on the surface; the compost for this purpose should be richer than that used at the time of planting. Top-dressings should be applied at intervals until the boxes are filled to within an inch or so of the top.

Shallots.—This crop should now be planted in well-prepared ground. Choose a sunny position. The cloves should be planted in rows made fifteen inches apart and twelve inches apart in the rows. Do not plant too deeply; leave the top of the Shallot well above the soil.

Transplanting Winter Onions.—Presuming that the ground intended for this crop has been well trenched and manured, it should now be prepared, when workable, by adding a good dressing of burnt refuse and soot. These materials should be well raked into the soil, which should then be trodden firmly and again raked over to ensure a good tilth in readiness for setting out the young plants. Lift the seedlings carefully and plant them very firmly in rows fifteen inches apart, allowing nine to twelve inches between the plants. These Onions, if attended to, should produce fine bulbs, suitable not only for the table, but also for early exhibition purposes.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain,
Brocket Hall, Hertfordshire.

Clerodendron Balfouri.—Plants of C. Balfouri that have been kept somewhat on the dry side may now be watered and started into growth. These useful plants may easily be increased from cuttings, and so soon as the young growths are about four inches in length they should be inserted in a sandy, open compost and stood in a propagating frame. When rooted, they should be potted on as they become ready, and finally placed in eight-inch pots. Treated in this way they will make excellent flowering specimens for next year. The compost should consist of good turfy loam, peat or leaf-mould, mixed with a liberal quantity of silver sand. Older plants may have some of the surface soil removed and be given a top-dressing of rich compost; see that the drainage is efficient.

Solanum Capsicastrum.—This useful berried plant is most valued for indoor decoration during the winter. Seeds may be sown now, or where a good strain of this Solanum exists, the plants may be propagated from cuttings. The seedlings or cuttings should be kept growing freely in the early stages to allow for the growths to be pinched several times to promote a bushy habit. During the summer the plants may be stood in a cold frame and the lights removed except when heavy rain falls.

Acalypha Sanderi.—Old specimens of A. Sanderi that have become somewhat overgrown may be cut back and placed in a house where a night temperature of 60° can be obtained, to encourage the development of young growths suitable for use as cuttings. The latter may be inserted when they are from four to five inches long in sandy soil and stood in a propagating frame where they will soon form roots. A few of the more robust plants may be potted on to form large specimens. This species needs liberal supplies of liquid manure when the receptacles are well-filled with roots. Syringe the plants freely to ward off attacks of red spider.

Euphorbia.—Euphorbia jacquiniaeflora and E. pulcherrima (syn. Poinsettia pulcherrima) are two of the most useful plants grown for winter decoration. They should be cut hard back after flowering and kept somewhat on the dry side for several weeks, when the roots should be watered to induce young growths to form, suitable for use as cuttings. During their resting period it is not wise to place the plants in a house having a very low temperature, especially E. jacquiniaeflora, for this plant requires a temperature not lower than 50°; this applies to pot-grown plants.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford,
Wrotham Park, Barnet, Middlesex.

Mulberries.—Large Mulberry trees usually produce excellent crops of fruits which are very useful for tarts, while large, well-ripened, clean berries are greatly appreciated by many as dessert. The trees are best planted in grass so that when the ripe fruits fall from the trees they will not be soiled. Young trees that are forming heads should be relieved of the numerous ill-placed sprays forming along the branches and the young shoots selected to form the future tree given every encouragement to develop. Old trees should receive a liberal dressing of manure over the roots, and do not overlook the support of the main branches against heavy storms, for the wood is very brittle.

Figs.—In cold districts, where some amount of protection has been afforded these trees, the protective material should now be removed and the pruning and regulating of the main branches finished forthwith. If the pruning and disbudding of the trees were attended to last summer the main fruiting shoots should be well-ripened and these may be laid in at a reasonable distance apart. Do not crowd the branches, as by far the best and most satisfactory crops of fruits are produced on trees the shoots of which are not too thick. After the pruning and nailing are completed, old trees should be well top-dressed with a mixture of loam, lime-rubble and a sprinkling of bone-meal. The feeding of the roots should be regulated according to the strength of the yearly growths. Brown Turkey is one of the very best and most dependable varieties to grow. Those who intend to plant Figs this spring should see that the soil is not too rich, the border well-drained and not too wide. Figs do best in a firm, restricted root-run. When they are in full bearing and the borders well-filled with roots, the latter may be fed with liquid manure at intervals during the summer.

Peaches, Apricots, etc.—The netting or other material used for protecting fruit blossoms, should be examined and mended in readiness for use. Where glass coping exists, not much difficulty is experienced in sheltering the flowers, and usually the crops of fruit are satisfactory. But good crops can be obtained with very slight protection if the wood is ripe and the flowers produced are strong. A couple of thicknesses of fish-netting supported by clean poles placed in the ground three feet from the wall, with the tops resting on the brickwork, will suffice in this case.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Zephyranthes candida.—This plant is a native of Buenos Ayres, and usually grown in a greenhouse, but in the south it is undoubtedly hardy, and used as an edging plant in various gardens. It has evergreen foliage and produces its white, Crocus-like flowers in wonderful profusion, during late summer and autumn. It may be planted any time during the spring and on dry, warm soils increases very quickly. It is known as the Peruvian Swamp Lily, and although with us it is indifferent to prolonged spells of dry weather, it is noticeably greener and stronger in spots where leakage from water taps or pipes occurs.

Pruning Roses.—The pruning of Roses may be commenced from the beginning to the middle of March, according to the locality of the garden, dealing first with the hybrid perpetuals and hardier hybrid Teas. Towards the end of the present month and beginning of April the more tender hybrid Teas, standards and Tea varieties may be attended to, finishing the work generally towards the end of April. Roses planted last autumn should be pruned to within three or four buds at the base. In the case of established Roses, no hard and fast rule can be laid down, although it is a fairly safe guide to prune weak-growing varieties hard, and the stronger-growing ones lightly. The weaker-growing, dwarf Roses should be pruned back to about three or four buds from the base; the same general rule applies to Roses grown for exhibition, which should be pruned harder than those grown for bedding or decorative purposes. The stronger-growing varieties should be more lightly pruned; in some cases the shoots, if they are firm and well-ripened, may be left twelve inches long. It is important to cut back to firm, well-ripened wood and dormant buds, even if it necessitates cutting the plant to the ground line, as has often to be done in the case of some of the more tender Tea Roses.

If it can be spared, at least one old shoot should be cut right down to the ground level every year. Some of the very strong-growing varieties that make growths six feet and eight feet in length, give only their best effect when in bloom when the shoots are pegged almost their full length to the soil. This results in lateral growths developing from each bud the entire length of the shoots. If it is necessary to retain any of the last year's shoots to furnish the bush the laterals made last year should be spurred back to within two or three buds of the base. A few Roses suitable for pegging are Hugh Dickson, Ulrich Brunner, Lady Waterlow, Gustave Régis, Frau Karl Druschki, J. B. Clark, Pax and Conrad F. Meyer. Roses planted at this late date should be pruned hard back. Where mildew was bad last season spray the bushes with liver of sulphur after pruning them, using half-an-ounce of the liver of sulphur to one gallon of water.

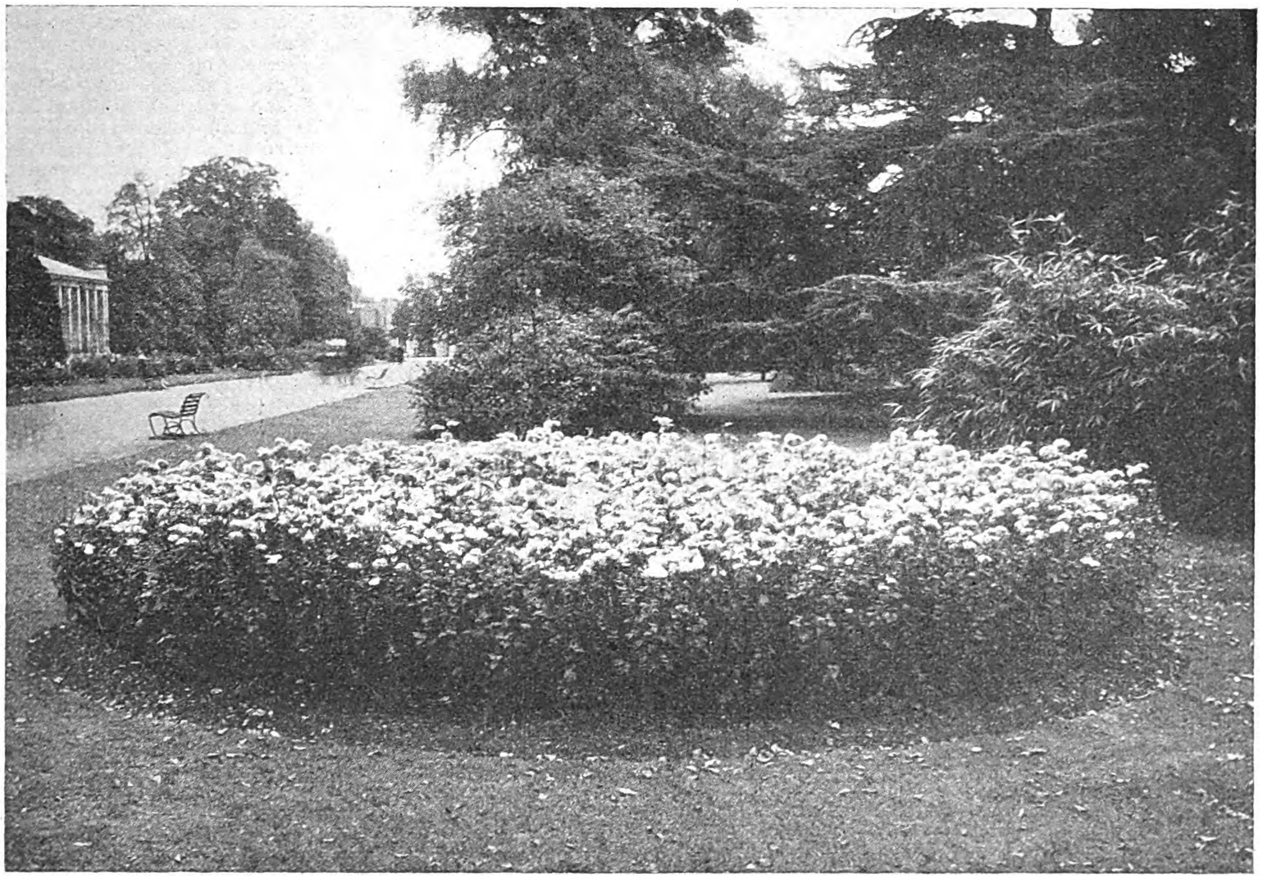


FIG. 78.—EARLY-FLOWERING CHRYSANTHEMUMS MRS. J. PEARSON AND WHITE BOY.

(see p. 160).

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Early Figs.—So soon as the fruits on early pot trees have completed their first swelling, their development for a period of about three weeks will be imperceptible, but if the roots are healthy good progress will be made. In dealing with these fruits at this stage the greatest care is necessary; anything approaching a check caused by dryness at the roots and sudden changes in the temperature is sure to be followed by the fruits dropping. A night temperature ranging about 60° should be maintained, whilst the day temperature may average 70° with the use of fire-heat, and up to 80° on bright, sunny days, with plenty of fresh air and atmospheric moisture. Close the house early in the afternoons and syringe the plants liberally when the fruits begin to swell. If the bottom-heat is maintained at about 70° to 75°, forcing will be safer and easier, and a few degrees higher by night and day will do no harm. The Fig is a gross feeder, and rich top-dressings composed of rough pieces of turf, bone-meal and decayed manure should be applied, but the soil should not be packed too tightly on the surface, for warm, diluted liquid manure is required to pass freely through the pots to the roots. The houses in which Fig trees are grown in restricted borders for successional fruiting may be kept at 55° to 60° by night and 10° higher by day with fire-heat. As the season advances considerable progress may be made by closing the house early with warmth from sun-heat, and plenty of atmospheric moisture. Syringe the trees twice daily with tepid water and occasionally with clear soot-water, but once only when the weather is dull. Pay careful attention to watering and both the water and the liquid manure should be 5° warmer than the soil of the border in which the trees are growing. Remove all superfluous side-shoots to prevent crowding of the branches, but at the same time make certain that the tree is properly furnished with short spurs.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Nailing on North Walls.—Fruit trees on north walls, including Morello Cherries, Gooseberries, Red Currants and White Currants, should now be pruned and tied or nailed to the wall. The training of Morello Cherries is a cold operation during frosty weather, and can only be performed advantageously when the temperature rises sufficiently high to prevent the fingers and toes from becoming numbed. It is, therefore, advisable to have some other more active occupation running concurrently to which attention may be more profitably turned during the morning hours. The young wood should be trained in, leaving room for the current season's shoots. Only the exhausted, older wood should be removed in the case of the Morello Cherries, while Gooseberries and Currants occupying positions on the walls are best spur-pruned, removing all forthright shoots, and training the plants as double or treble cordons, retaining the leading shoots so far as they have room to extend. Black Currants may also be grown on north walls, and such bushes furnish a most acceptable crop of late fruits.

Pruning Autumn Flowering Shrubs.—The pruning of certain shrubs which flower in autumn should now be done; these include Buddleia variabilis and its varieties, which produce much larger and finer panicles of flowers when hard-pruned in spring; the beautiful Ceanothus Gloire des Versailles, Hydrangea paniculata, Romneya Coulteri, and plants of a similar type, all of which will be greatly improved by the judicious use of the knife at this season. The Romneya should be cut well down in order to encourage strong shoots to develop from near the base; these basal growths may reach a height of six feet or seven feet during the season, and produce a splendid display of flowers during August and September. The autumn-flowering Clematis, of which C. Jackmanni may be taken as a type, should also be cut back to a bud showing green, and the tangle of last year's growth removed. Vitis Coignetiae should be spur-pruned when it has covered its allotted space in order to keep it within bounds.

Seed-Sowing.—The main batch of Tomatos is best raised from seeds sown towards the end of this month, and plants raised from earlier sowings should be kept growing freely by potting them on as required. Celery for early supplies should be sown now and the seeds germinated in a moderate temperature. Where plenty of heat is available a few seeds of Cucumbers may be sown, and an early sowing of Melons may be made, but where sufficiently high temperatures are not available, the sowing of the two last-named had better be deferred for a few weeks. Many kinds of half-hardy annuals, such as Nemesias, Nicotianas and Petunias, may be sown in boxes under glass now; these may be raised in comparatively cool houses, where they will grow sturdily from the start. Many failures among half-hardy annuals may be traced to raising them in too much warmth, thereby enfeebling their constitutions.

ALPINE GARDEN.

ARENARIA LEDEBOURIANA.

This attractive little Sandwort makes a delightful foil to the handsome rosettes of the encrusted Saxifrages; and it is seen at its best on sunny ledges where its roots can travel in search of moisture. The starry, white flowers, which are borne gracefully on practically invisible branching stems a few inches high, are produced very freely in June and July. Seen at a distance, the inflorescence resembles a shimmering gossamer veil caught above the plant. This unusual effect adds considerably to the garden value of the Arenaria when it is planted in such a manner as to attract the eye from point to point, in the same way as the mossy kinds of Saxifrage are utilised earlier in the year.

Arenaria Ledebouriana grows well in a cool, gritty compost of crushed mortar, sand and chips, with a handful of loam and well-rotted leaf-mould added. It is amenable to the vagaries of the weather, but in very wet districts it is apt to " go off " in the third or fourth year. This can be obviated to a certain extent by dressing the roots with sifted leaf-mould and sand during fine periods, but in my experience it pays better to take cuttings and replant. The young growths strike readily in sand or in the open moraine, if kept moist. Old plants broken up and grown on as cuttings, will develop into strong flowering tufts by the following season.

During the winter, a piece of glass should be arranged over the plant to ward off excessive moisture. *Selwyn.*

FLOWER GARDEN.

BORDER CHRYSANTHEMUMS.

Early-flowering Chrysanthemums are becoming increasingly popular each year, which is not surprising when it is considered how easily they may be cultivated, and how useful they are, not only for furnishing beds and borders, but also for furnishing supplies of cut blooms for market, as well as for private establishments. There are three distinct types in cultivation, viz., the Japanese, pompon and single, the Japanese being by far the largest and most popular class.

The ideal Chrysanthemum for bedding purposes should be of a fairly bushy, stiff habit, thus rendering the use of supporting stakes unnecessary. If required for supplying cut flowers, somewhat taller-growing varieties, with a looser habit, should be selected, as length of stem is important for floral arrangement. Certain varieties produce sprays of flowers that are best if not disbudded, while others need to be disbudded to obtain the best results.

The illustration in Fig. 78 shows a fine bed of Mrs. Jack Pearson and White Boy at Kew. The former variety is a very fine type of Chrysanthemum for market; its stiff sprays of warm chestnut-brown flowers are ideal for cutting. As a bedding variety its habit is somewhat too thin, but when mixed with White Boy, a variety with more ample foliage, it makes a very fine, large bed, and although both attain a height of two-and-a-half feet to three feet, they do not require staking, even when grown in an open situation.

Cuttings may be rooted during January, February and March. After the young plants are hardened they should be planted out in lines in the reserve garden; as a matter of expedience, I plant them out during March, and they succeed perfectly; but as a general rule April may be regarded as the best month for planting them out. Certain varieties break naturally without stopping, while other varieties may have to be stopped once or twice. The plants may be lifted from the nursery and transplanted, even when coming into flower, to refurnish beds of early-flowering plants that are over. When grown for market, some of the later-flowering varieties may be lifted and placed in cold houses, or protected with canvas screens in the open.

There are numerous varieties to choose from, and individual tastes differ so much that it is difficult to give a selection, but the colours should be bright and warm, such as various shades of yellow, crimson, bronze and brown, such colours being more effective during the dull days than the pink and purple shades. The following are a few good varieties in the Japanese section: Abercorn Beauty, Dick Barnes, Goacher's Crimson, Diana, Polly, Sanctity, Harry Thorpe, Normandie, Elstob Yellow, Nellie Thorpe, Miss G. K. Thorpe and Almirante. A few good pompons are Craigmillar, Flora, Little Bob, Mignon, Piercy's Seedling and St. Crouts. *J. Coutts.*

NEPETA MUSSINII.

Though mostly used as an edging to the hardy flower border, this plant may be utilised as a bedding subject. A large bed on a lawn or in the flower garden massed with this plant looks, from a distance, like a mist of Lavender. I have employed it with good effect in large beds as a ground-work for large pillar and standard-trained plants of the pink Ivy-leaved Pelargonium Madame Crousse, interplanted with Gladiolus Prince of Wales, salmon rose-pink, and with a broad edging of Viola Bullion. The effect was very much admired.

Nepeta Mussinii is easily raised from cuttings or by division. Cuttings root readily in a cold frame in autumn and only require protection from rain and snow during the winter. If the beds are ready this Nepeta may be planted early in spring to become well established before the summer. *George Mackenzie, Cranmer Hall Gardens, Fakenham, Norfolk.*

AQUILEGIAS.

Too much praise cannot be lavished on the Columbines, for they possess all that is graceful and beautiful amongst hardy perennials, as well as being most accommodating either in the herbaceous beds or borders, on the rockery, or when grown as pot plants in the cold greenhouse. They succeed in partial shade and may be planted in full sun, but in the drier places they need copious waterings during times of drought. Their dainty, spurred and delicately-coloured flowers, produced either solitary or in clusters on stout, wiry stems, appear from May to August.

The beautiful Aquilegia alpina has blue and white flowers; hybrids of A. californica have yellow sepals and petals tinged with orange, and reddish spurs; A. canadensis, the American Columbine, has cinnabar-red and yellow flowers; A. chrysantha is a golden-yellow species; A. coerulea, the Rocky Mountain Columbine, has very beautiful blue and white flowers as have also A. glandulosa and A. Stuartii; A. Skinneri has red and golden flowers, whilst A. nivea grandiflora is a charming snow-white Columbine. The plants may be increased by division or by seeds. They should be planted in a fairly light, rich, loamy soil. *W. L.*

BULB GARDEN.

IRIS WEDGWOOD.

Nothing more pleasing than this new Iris could be imagined, and the granting of a First Class Certificate by the R.H.S. Floral Committee, on February 8, must have met with very general approval. When one compares this Iris with I. tingitana, which, nowadays, is so difficult to cultivate on account of yellow streak disease, I. Wedgwood appears as a boon and a blessing, for the pots of this Iris shown by Messrs. Lowe and Shawyer were perfect examples of culture, and the plants exhibited no trace of the disease. The stems were strong and perfectly upright, with no tendency to bend, as happens frequently with those of I. tingitana.

The flower itself reminds one of the very best of the Spanish Iris, though stronger than most. The colour, as the name implies, is Wedgwood blue; the fall, which is almost circular and about an inch-and-a-half in diameter, has a defined marking of bright yellow in the centre, merging by way of cream into the blue. The standards are a darker blue, and these are strong enough to maintain their upright position even when the flower is past its best.

It is, I imagine, the finest addition in recent years to our winter- and spring-flowering plants for the greenhouse. *J. S. D.*

INDOOR PLANTS.

LANTANA.

The dwarf, hybrid shrubby Lantanas may be treated as annuals. A batch of plants raised from seeds sown in heat early in the year will furnish a bright display in the greenhouse later in the season. So soon as the seedlings are large enough to handle they should be transferred to small pots filled with light, rich soil, and grown on in a warm greenhouse, potting them as required until they are in receptacles six inches in diameter. Pot firmly, and for the final potting use a strong compost.

As growth develops pinch the shoots occasionally to promote a bushy habit. The growth is firm and wiry, and staking is not required.

The brightly-coloured blooms, in shades of yellow, orange, pink, carmine and white, are borne in densely-packed, round heads. Frequently the flowers change colour, and differently coloured blooms are borne in the same truss.

Lantanas may be propagated from cuttings. By pinching out all lateral growths and restricting the plant to one stem, standards of any height may be obtained. When the height desired has been reached, pinch out the point of the growth allowing sufficient laterals at the apex to develop to form the head.

The winter treatment is the same as for Fuchsias; a cool temperature is best, and only sufficient water to prevent shrivelling of the wood should be afforded the roots. Before starting the plants into growth in the spring they should be pruned and repotted.

Lantana Camara is, perhaps, the strongest-growing species and, if planted out, will grow to a height of ten or twelve feet and cover a large area of the back wall in a plant corridor or cool greenhouse. *F.*

MEDINILLA MAGNIFICA.

Medinilla magnifica is one of the most handsome of stove flowering plants. It is a vigorous grower, and when allowed sufficient room for development, makes a splendid specimen; a big plant in full bloom is indeed an object to command admiration. Plants of this description are, however, too large for the majority of private establishments, and are only to be seen in botanic gardens. Plants in six- or seven-inch pots flower well and are very useful for the decoration of the warm house.

Cuttings of the young shoots, taken off at a joint and inserted in sandy soil, root readily in a close propagating case. The weaker shoots strike root more readily than the very strong, vigorous growths.

During the growing season an abundant supply of water is necessary at the roots; under congenial conditions it is surprising what a large plant is obtainable in a comparatively small pot. In the winter less water is necessary, for at this season the plant requires a partial rest.

The coral-pink flowers are produced in spring in drooping panicles which may be up to one foot in length. Their effect is enhanced by the pink colour of the axils in which they are borne and also by the large, pink bracts. The inflorescences contrast pleasingly with the broad, glossy, leathery foliage, which has paler veins.

A compost which suits Medinillas consists of good fibrous loam, with a little peat and plenty of sharp sand. The addition of small pieces of charcoal is beneficial.

Ample drainage must be provided, and only small shifts should be given when potting is required. Plants that have filled their pots with roots may be fed liberally during the season of active growth. *T. H. Everett.*

FLORISTS' FLOWERS.

BORDER CARNATIONS.

It will be advisable to examine the plants and make any that are loose at the roots firm in the ground, also to stir the surface soil so soon as possible, but soil conditions have to be considered in this respect, for when the ground is heavy and rather retentive, treading the plants is apt to defeat its own object. Soil on the heavy side certainly suits many Carnations, notably Selfs, provided they are not the yellow shades which, together with the yellow ground and Fancies, prefer, as a general rule, soil which is lighter.

There is still time for those who prefer spring planting to add to their collection, as March is the best month to do so, and among many good things, all the latest white ground Fancies are excellent. Mrs. James Fairlie, marked and flecked slate-grey, and Mrs. F. W. Seymour, with markings of carmine-rose, are two most beautiful flowers, the latter having gained both a First Class Certificate and an Award of Merit. Lady Bowen, a greatly improved Mrs. G. D. Murray, named after the Lady Mayoress who kindly opened a Carnation show at Carpenters' Hall, and Woodpark, both awarded a F.C.C. in 1925, are worthy companions, the last-named being perfectly shaped and lightly marked with pale rose. It is said to be so strong of stem that support of any kind is unnecessary.

Of yellow grounds the outstanding varieties are Duke Ivor, rich yellow, heavily marked with carmine-crimson, a beautiful and perfectly-shaped flower of strong habit; Ben More, a dainty, finely-formed bloom, the petals edged with clear rose-pink, which I greatly admired; and Hadrian, buff, suffused scarlet, with deep crimson stripes.

The Selfs include the pure white Mrs. H. Swan, which should be found suitable for market purposes, as though not quite up to exhibition form, it is strong, floriferous and excellent for all decorative purposes; while a good deep rose-pink sort named Asphodel will please all who like that colour.

The Fancies, pure and simple, have become very popular with growers, and many new varieties of these fascinating Carnations have lately been sent out. The following sterling novelties will be grown by all in search of fresh colour schemes. Ebor, a flower of that perfect form I have often noticed goes with that combination of colours or near it, light chocolate, striped scarlet and dark maroon (an example of this being The Cadi, a variety brought out three or four seasons ago, whose every bloom is shapely); Ida Gray is an ideal flower of salmon-pink marked with silver-grey; Old Smoky is a decided break in colour, the raisers' description being dusky apricot, sparsely banded with dark carmine. It remains to be seen if this will prove a favourite, but I think any departure in colour combination should be welcomed. provided the plant is strong and the flower well-shaped. Lastly, there is Julia B. Wells. at present, I believe, unique in its beautiful slate-grey ground, striped plum-blue, with a delicate pinkish sheen on the petals. This is a large flower of the strongest border habit, and I specially recommend it for that purpose.

As many amateurs do not understand what a Fancy is, I may state that the name is now adopted by the National Carnation and Picotee Society in place of the word "Nondescript," formerly used to denote any combinations of colour other than yellow or white ground Fancies. A Fancy may be of any two or more colours, provided they are not yellow or white.

Besides the novelties mentioned, there are Sam Griffiths, which appeared last year, a good doer, very shapely, and beautifully marked light cerise on mauve; Myrtle, Pettigrew a lovely flower of telling old rose colour, banded with scarlet; Cleopatra, rose madder, speckled with scarlet; Verdun, chocolate, striped maroon; the two last well-tried favourites being of good form and substance, and fit for any purpose, while Doris Trayler, with bright scarlet ground and dark maroon marking is also, like Mrs. A. Brotherstone, Clove-scented.

With one exception, I planted all the novelties I have mentioned in the open border last autumn, and they have all passed through the winter unharmed by cold, and are commencing to grow.

Selfs of recent introduction which are proving of sterling merit are Joan Wardale, deep crimson, which shares honours with that good old variety Gordon Douglas; Bookham Scarlet, splendidly strong and well-shaped, a grand variety for exhibition; Coral Clove, with its changing tints, and heavy perfume; Bookham Sunshine, an excellent open border yellow; Delicosa, lovely lilac rose and well proportioned; Benedict, deep rose-pink, large, and of great substance; Nautilus, soft salmon-rose, an acquisition for the border; Rhoderick Dhu, a glowing wine-crimson, suitable for any purpose; and Bindle, a very strong, grey-heliotrope. Two fine varieties exhibited at Carpenters' Hall last season were Cockatoo, rose, and Shirley Surprise, maroon; the former is a delightful flower, and should be more generally known.

Yellow ground Fancies are enriched by the following new sorts: Mrs. J. L. Gibson, that beautiful Kelso-like flower, an early bloomer which I find particularly lasting; Viceroy, a grand flower perfectly shaped, grows well anywhere; Clio, quite distinct, with its one wedge of scarlet on each petal; Dr. Connor, softly suffused with pink and striped red; Highland Mary, exquisite in every respect; Hotspur, perfect in the border, striped and suffused pink, rose and yellow; Dr. Stone, a very bright flower with brilliant rose markings; and Sheila Gibson, the heavy lavender shading flecked with pink and carmine being charming.

A flower which has never been surpassed is Sweet Anne Page (Fig. 79). I know it is difficult to layer, but it is so lovely, it should be included, if possible, in all collections.

Of white grounds, Ravenswood, with its heavy maroon markings; John Stobart, barred soft rose; Mrs. E. Charrington, a well-known variety; Prospero, marked rosy scarlet, one of the best; and Flora McIvor, a dainty flower striped cherry-rose, are amongst the latest additions, strong and suitable for border or pot cultivation, but I have not found one to take the place of Fair Ellen in my affections. This is, indeed, a noble variety.

The Clove section has The Royal Clove added to it this season; the flowers are large and of a fine cardinal pink shade. As exhibited it was very lovely and should be an acquisition to the open border. Older varieties which stand out are Steerforth, Rose Clove, Crystal Clove, Margaret Keep, Salmon Clove and Spicy Breeze. *J. B. Wells.*

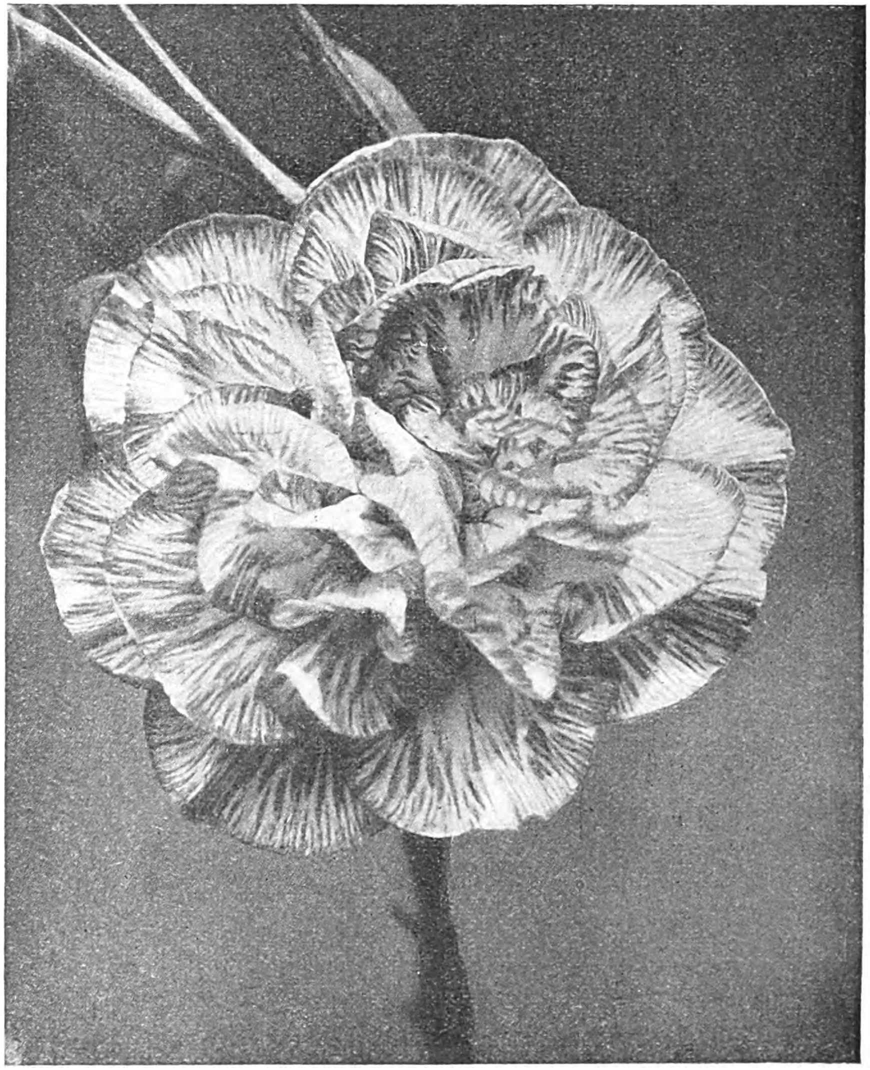


FIG. 79.—CARNATION SWEET ANNE PAGE.

NEW CARNATIONS.

The following varieties of Perpetual-flowering Carnations have been registered with The British Carnation Society: Wivelsfield Copper, copper-bronze, blended with orange; Velvet, light mauve, shaded with crimson; Splendour, bright salmon-red. These three were raised and sent by Messrs. Allwood Bros., Wivelsfield Nurseries, Haywards Heath. Happidais, a bizarre coloured variety; Margot Holmes, mauve. These two were raised and sent by Messrs. Stuart Low and Co., Bush Hill Park, Middlesex.

EDITORIAL NOTIOES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

MR. F. KINGDON WARD'S NINTH EXPEDITION IN ASIA*

VII.—The Lower Seinghku Valley.

I WAS up at 4.30 a.m. on May 16, anxious to see what sort of a country I had reached. The valley opened out a little here, two considerable streams entering the Seinghku, one from either side; and through one of the rents lofty peaks appeared in the background, their summits hoary with snow, which shone dully behind a veil of mist. The river rushed clamorously through a gut choked with sub-tropical forest, every tree of which was inundated with striving plants, especially Orchids, Ericaceae (Rhododendron, Agapetes), Melastomaceae, Ferns, Zingiberaceae and Aeschynanthus. Then came a few poor clearings, little oases snatched from the hungry ocean of forest, which closed in again, and gradually became more temperate in character. It is important to remember, however, that in every direction the mountains were hidden under a dense covert of more or less evergreen, broad-leafed trees, since that one fact gives the key to the climate—rain at all seasons.

The river was spanned by a sagging Cane bridge (Fig. 83) even more frightful than the, one at the confluence, though not so long.

During the ascent of the Seinghku valley, I saw masses of Rhododendron dendricola, which became more and more abundant and now, at an altitude of 5,000 to 6,000 feet was in full bloom. A little further up the valley, and on the ridges not far above our camp, grew R. Mackenzianum, with an occasional specimen of R. Nuttallii not yet in bloom; and still higher I met with a solitary "Grande" species, evidently youthful, for it had flowered the previous year and exhausted its strength.

Thus far then, there was no change in the Rhododendron flora, the typical Burmese, sub-tropical forest species holding the field. Other trees and shrubs noticed were: A species of Ficus with handsome, polished leaves, Alnus, Decaisnea (in flower), Acacia, Populus, Quercus (several species including Q. lamellosa), Acer, Euonymus, Ailanthus; also many big Araliaceae, climbing Palms, an immense-leafed Musa, bushy Ericaceae (Vaccinum, etc.), and climbing plants like Akebia, Schizandra (bright yellow flowers), and Tripterygium. There were numerous species of Rubus growing in the open meadow, and in old clearings, one in particular bearing masses of yellow fruits quite pleasant to eat. After a hot climb, I indulged freely in this dessert, mixed with goat's milk, and found the ripe fruit most refreshing.

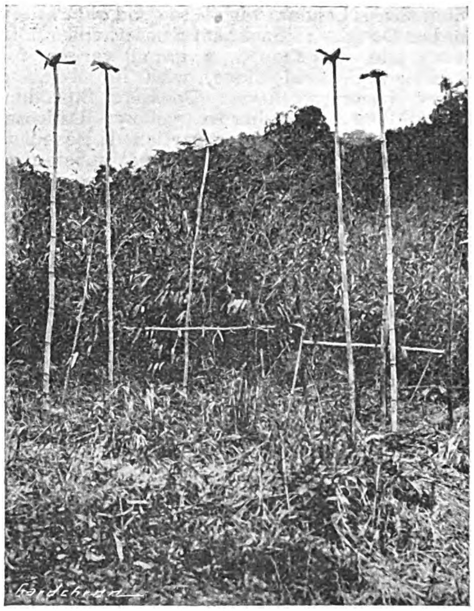


FIG. 80.—IN THE TRACK OF THE FAMINE.

New Nung graves, and secondary growth.

One day I climbed a bold spur which evidently reproduced at quite a low altitude, the conditions of loftier regions. From the start, Rhododendron Mackenzianum was common, and where other trees flourished they had to support puffy white clouds of R. dendricola (Fig. 81). A little higher up came the first 'Vaccinioides' Rhododendron in bloom. This was a small, epiphytic undershrub, rather loose and leggy in habit, but remarkable for its bright orange flowers, ringed with brick-red anthers, which peeped out from amongst the tense green, spoon-shaped leaves. These leaves are rather large, larger than in any other 'Vaccinioides' species known to me, fat and polished; while young shoots were breaking into puce-coloured plumes, and the ground beneath was starred with fallen corollas. The species (K.W. 6735) is at any rate not the Himalayan R. vaccinioides. It is the best of three species of the section found by me, but dainty though it undoubtedly is, I am reluctantly compelled to admit that the 'Vaccinioides' Rhododendrons have no garden value—even apart from the fact that they are not hardy. Botanically, however, they occupy an unique position in the genus.

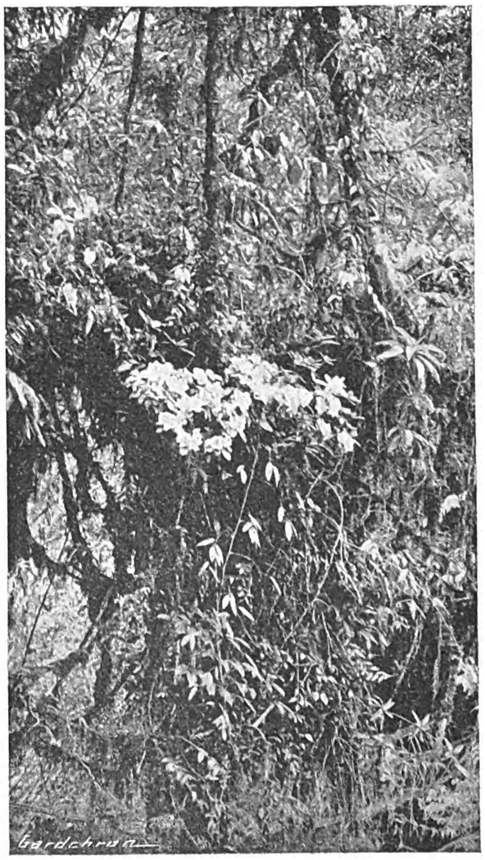


FIG. 81.—RHODODENDRON DENDRICOLA.

On a cliff, raked by the winds from either flank, I found quite a colony of Rhododendrons, including R. Maddenii, and a small tree 'Neriiflorum,' with long, narrow leaves, glaucous, with wax beneath, and bristly petioles. R. Maddenii, formed fairly stout, compact bushes, but was not in flower; and on the glassy-stemmed 'Neriiflorum' which defied gravity, plus or minus, and grew almost horizontally out from the cliff, I could discover neither fruit nor flower buds. Another interesting epiphyte was found here. The small crinkly, woolly-bear leaves pointed to R. Edgworthii, but K.W. 6793 is not that plant, though allied; it has neither the flowing, draping habit, nor the large, white flowers of R. Edgworthii. Here it was a rather angular, clumsy-looking shrublet, though that may have been because the specimens were not happy. The flowers are not so large as those of R. Edgworthii, of a bright canary-yellow, with red-brown anthers. If hardy—and it grows as high up as 9,000 feet—it has the makings of a rock plant.

Orchids abounded, growing on rocks and trees down the backbone of the ridge; and on the face a pretty Calanthe was coming into flower.

Six days we stayed here in camp, not idle, but impatient. The local man power was strained to the utmost, providing three coolies, so we had to look to the Tibetan colony up the valley, or to the Tarons of the Adung, for help. Meanwhile, the Tibetan headman had come down to see me, and after a friendly chat had betaken himself back to issue orders for the building of a log hut at his village, where I proposed to establish my base camp. When the hut was finished, he sent down a dozen men to escort me, and so, at last, on May 22, we were able to advance once more. Most of the loads, of course, had to be left behind in charge of the *Chokara*, who was sick; and these were gradually moved up as vagrant coolies turned up from the Adung.

The next stage up the Seinghku valley resolved itself into two parts: (1) Along the river bank, higher or lower, in forest, for a few miles; (2) up a steep ridge, back from the river, with an abrupt descent again to permanent meadow and cultivation (Fig. 82) at the village, with a net ascent of about 1,000 feet.

Now the flora began to grow more interesting. On the river bank grew a fine, red-barked Birch, and a dark-leafed Illicium, studded with pale, moth-like flowers. Better still, the narrow ridge, which was cut away on either side and plunged headlong down to gnashing streams, was almost entirely colonised by Rhododendrons; thus proving the need, even here, of a slightly xerophytic flora. I might add that the genus is extremely sensitive to even so small a change as this, and being extraordinarily aggressive in its homeland, is at once prepared to occupy positions of which other trees are a trifle shy. The knife-edge ridge was in fact clothed with a species of 'Irroratum' Rhododendron, which, however, though well-grown, had not flowered the previous year, and had no intention of doing so this. It was only after a prolonged search in October that I found one tree out of many dozens examined, which carried a few current capsules; so what the flowers are like I cannot say.

The epiphytic Rhododendron flora included all the species already described together with another 'Vaccinioides' species to be described later; R. dendricola was still flowering bravely.

It is a curious and not unimportant detail of the plant collector's experience to remember that, when *ascending* a steep, wooded mountain

---

* The previous articles on Mr. Kingdon Ward's Ninth Expedition in Asia were published in our issues of August 14, 28, October 9 and November 20, 1926, and January 1, February 19, 1927.

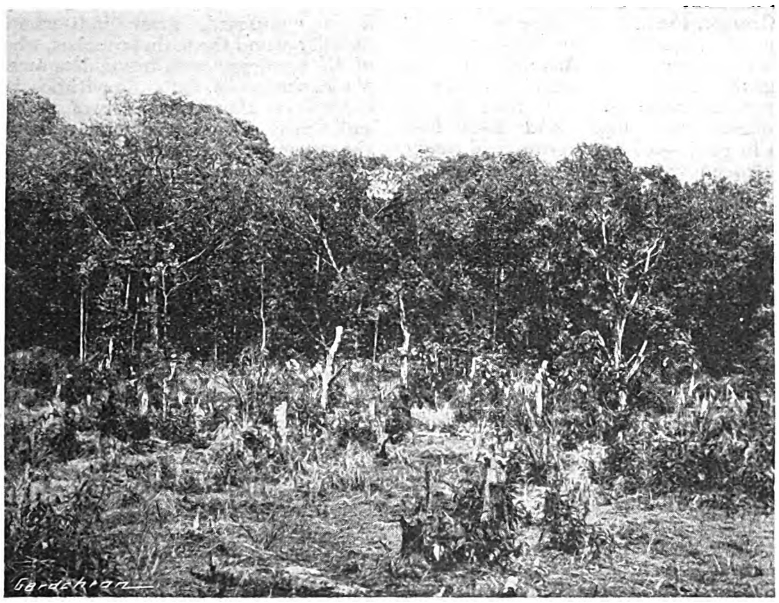


FIG. 82.—CULTIVATION IN THE JUNGLE.

path, he is more prone to notice plants low down, and when *descending*, to notice the tree tops. Thus it was that, on this occasion, I failed to notice a remarkable tree which, when passing this way in August, I immediately singled out. It was a Rhododendron, with large, somewhat drooping leaves, and fine, big trusses of fruits, tawny in colour. Naturally, I took it for a 'Grande,' and it was not till October, when I made a special pilgrimage to the ridge for seeds, I made the astonishing discovery that it was really an 'Irroratum.' There was only the one solitary tree, some forty feet high, with a smooth, fairly erect trunk, branching out thickly at the summit; and it grew on the ridge in the very midst of the 'Irroratum' belt. The largest leaves I collected were a foot long and six inches wide, but apart from their size, they were of the typical 'Irroratum' type; the same cannot, perhaps, be said of the fruits, which are closely furred with rust-red, bristly hairs. The truss is very large and open—at least, in fruit—carrying fifteen or twenty flowers; and since the 'Irroratums' are all scarlet, this big-leaved tree in full bloom must be a gorgeous explosion of blazing fire.

On the ridge, too, was a single example of one of the most striking Maples I have ever seen. It was quite a small tree, dwarfed possibly, and in full fruit, hung all over with scores and scores of bright red tassels. In this respect it resembled A. Henryi, but the tails in my plant are longer and the small fruits with widespread wings cuddle more closely than in A. Henryi. In foliage the two species are sharply contrasted, for my plant has simple, entire leaves, with a long drip-tip. Five months later, the tails, now a little longer and a little fatter, though they had lost their chubby freshness, still hung motionless and intact, beautifully draping the foliage. There are several species of Acer in the valley, but nothing so good as this one.

Pinus longifolia, a giant tree with long, glaucous needles and big pendant cones also descended to the flanks of the ridge; but its true home is a thousand feet higher up.

The trees and rocks on the ridge, in contrast with those in the dim depths of the jungle, were smothered with a snaky growth of epiphytic Orchids, of which one species, a white-flowered Vanda, was in bloom high up. When I returned here in October, I collected half-a-dozen species in flower, some of them very quaint.

After a considerable ascent, I traversed the face of the mountain in thick forest, till, suddenly I emerged on to a wide-open terrace, partly cultivated, but mainly under grass and Bracken. There were a few small, wooden huts here.

Descending the steep flank of the terrace, I quickly reached the river once more, and, passing through a belt of trees, found my new hut on the river bank. In the meadow, a bushy Viburnum with chalk-white flowers, was abundant, and a large, floppy Rose sprawled about in thickets of Bamboo, Barberry, Euonymus, etc. To these may be added species of Clematis, Honeysuckle, and other climbing plants. The valley opened out a little, and there was a little permanent meadow land where cattle grazed; but the mountains were precipitous, and thickly forested to their summits. A few houses were threaded on the strip of cultivation at the bottom of the valley, and the boisterous river was spanned by a small wooden bridge. Up the valley I could see nothing but more mountains and more forest; but snow was visible on the loftiest ridge, visible through a gap opposite my camp, whenever the cloud thinned a little.

So I began to settle into my hut and take stock of the situation. *F. Kingdon Ward.*

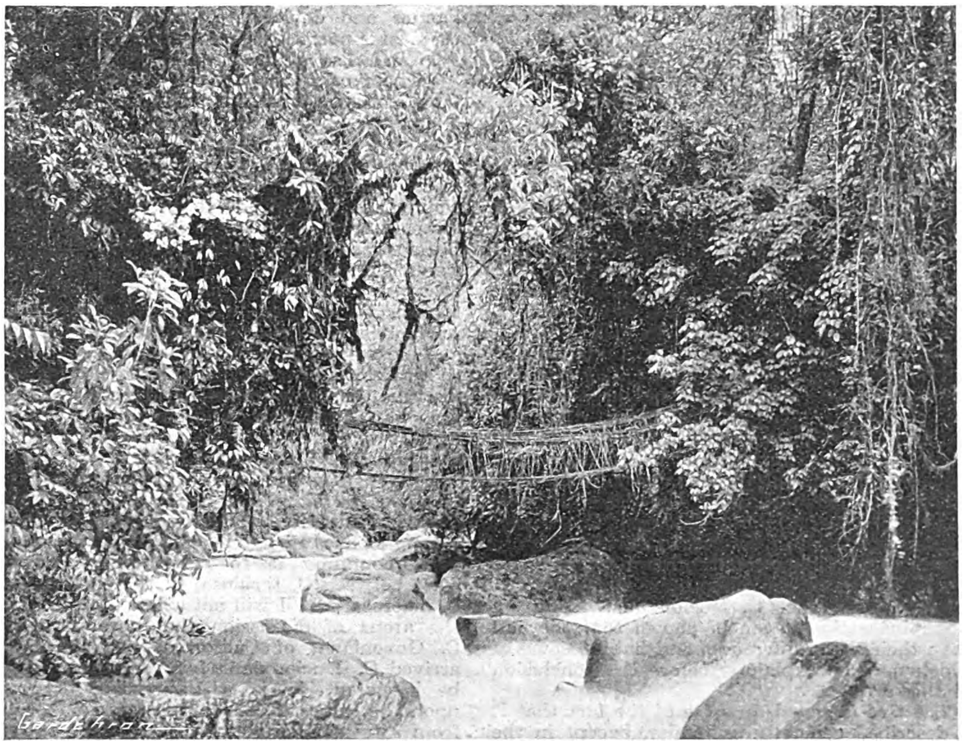


FIG. 83.—CANE BRIDGE OVER THE SEINGHKU RIVER.

NOTES FROM WISLEY.

During the winter months the gardener is thankful that the majority of injurious insects are resting, and that comparatively little damage is actually being done by them. His mind is not so easy, however, with regard to birds and animals, many of which are extremely active. The grey squirrels are a constant source of trouble, and during the last fortnight most of the top branches of a Cupressus Lawsoniana in the Wisley wild garden have been cut off as neatly as with a knife by the sharp teeth of a pair of these creatures. The prunings have been laid in a heap at the foot of a neighbouring blue Cedar in which it seems likely that a nest is to be built. Birds are also giving trouble by mischievously pecking off the flower buds from trees such as Prunus Pissardii and by removing the berries from shrubs such as Berberis and Cotoneasters, most of which have now completely lost their fruits. An exception is Cotoneaster rotundifolia, whose round, sealing-wax-red fruits still persist in large numbers.

Many of the Berberis and Cotoneasters which have lost their berries are still ornamental on account of their evergreen foliage. Among the most useful in this respect are Berberis Sargentiana, with dark green, glossy leaves; Cotoneaster serotina and Cotoneaster microphylla, the leaves of which are now tinged with purple, while among other evergreens which stand out are Osmanthus Delavayi and Lonicera pileata, with particularly fresh, green foliage. The flowers of the Witch Hazels are now past their best, but the little yellow blooms of the Cornelian Cherry (Cornus Mas), which is as yet leafless, are just showing.

The Heath Garden is now very bright, chiefly owing to the flowering of various forms of Erica carnea. One of the earliest and best is Erica carnea King George which, in company with E. c. Queen Mary, has been in bloom since the beginning of December. Some of the deeper coloured varieties are now commencing to bloom, of which Erica carnea Vivellii is one of the most distinct. In addition to these and other good varieties of this species, such as Pink Beauty and Queen of Spain, Erica darleyensis is making a bold display, and plants of Erica mediterranea alba, although still in bud, are not unattractive at this stage.

The long border which flanks the Paeony beds has now been planted with a comprehensive collection of long-spurred Aquilegias, in front of which about sixty different varieties of Crocus are coming up. Gentiana acaulis has for many years formed an effective edging to this border. A few blooms are now visible, but the majority have been considerably damaged by sparrows and by frost.

The Narcissi in the wild garden are much later in flowering this year than last. Nevertheless, a few Narcissus cyclamineus are now in flower and look particularly well where they have come up among the red leaves of Schizocodon soldanelloides. Narcissus cyclamineus has only just come into bloom in the alpine house, where it is flowering with many other yellow-flowered subjects, such as Narcissus bulbocodium, Draba armata and Morisia hypogaea.

A feature of this house at the present time is the large number and variety of Kabschia hybrid Saxifrages. A particularly striking one is Saxifraga × Jenkinsii, with large and shapely flowers of pale pink, while the very grey-foliaged S. Sundermanii, S. lilacina and S. Elysium, with deep rose blooms, are also very charming. Pretty yellow-flowered Saxifrages in flower include S. Franzii and S. juniperifolia var. macedonica. Among the Primulas in the alpine house, Primula megaseaefolia is now at its best, and P. Allionii, a native of the maritime Alps is also in bloom. The scape of this tiny Primula is almost absent, and the pink flowers rest upon a sticky rosette of leaves.

In the alpine frames several Crocus species, such as C. Korolkowii, with yellow flowers, and C. laevigatus with striped mauve flowers, are in bloom.

Snowflakes and Snowdrops are now flowering in large numbers in the wild garden and in the border in front of the laboratory a giant Snowdrop, Galanthus latifolius, is in bloom. Here also may be seen Galanthus nivalis viridapice, the perianth of which bears broad, green markings *J. E. Grant White.*

TREES AND SHRUBS.

CUPRESSUS TORULOSA.

The Himalayan or Twisted Cypress.

The Supplementary Plate accompanying this issue is reproduced from a photograph taken by Mr. Heyworth Knighton, and represents a specimen of Cupressus torulosa growing at Stanage Park, Radnorshire.

To give the tree its full title—if anyone would wish to indulge in a little pomposity—I should have to describe it as a qualified member of the section of Cupressus called Eu-Cupressus, which is, in turn, a sub-division of a sub-tribe called Thuinae, of the tribe Cupressineae. This is the sort of meticulous and detailed description that would only be insisted upon for a continental traveller in a disturbed country to exhibit upon his passport. It will be quite sufficient, for most of us, to regard the species as a graceful Cypress, very much like, *prima facie*, several other Cypresses, to wit, C. macrocarpa (Monterey Cypress), C. sempervirens (the Roman Cypress), in their fastigiate form, and also like the Californian C. Goveniana (Gowen's Cypress), and the more newly arrived species from China, C. Duclouxiana. But on closer inspection it can be shown that they all have their little differences and habits, some of which may be explained before the conclusion of this article.

The tree depicted, in spite of the fact that it is described generally as tender, except in the more warmly favoured parts of England, has grown at an elevation of nearly 800 feet above sea-level. According to old documents, it was planted in December, 1842, and referred to, on their pages, as C. tomentosa, torulosa. In 1926, it measured forty-seven feet high, and seven feet four inches in girth, and though, not aspiring to championship honours, would, we were told by the authors, had they paid it and us a visit earlier in these days of quest and volume making, have been given a niche in that Walhalla of remarkable British-grown trees, by H. Elwes and Prof. Augustine Henry, in their book entitled *The Trees of Great Britain.*

A tree growing at Killerton, Devon, measuring sixty-five feet high and five feet four inches in girth, appears to be the largest tree of the group mentioned by the authors of this book. At Hewell Grange, mention is made of another —the leader of a quartet—that measured in 1909, fifty-six feet high and three feet eleven inches in girth. Lord Plymouth has kindly had the tree re-measured for me; it is now sixty-three feet high and four feet eight inches in girth—a height growth of seven feet in seventeen years, and an exogenous growth of nine inches in the same time; a growth approximately of less than six inches per annum in height and half-an-inch in girth.

Again, not very far from here, there is a good specimen at Eastnor Castle (Lord Somer's), and also one at Penhyrn Castle, both of which places are noted for their trees, planted by tree-loving ancestors in the earlier quarter and half of the last century. There are other good specimens reported as flourishing in the milder climate of Devon.

In the *Trees of Great Britain* appears an illustration of an avenue of Cypressus torulosa growing at Cuffnells, New Forest, the residence of my late old friend and contemporary, Mr. Reginald Hargreaves. When I saw them, I recall that these trees gave me the impression of being rather taller and more slenderly built than our single specimen. This impression was confirmed when I found that they measured, at the time of Elwes' visit, some forty-five feet high and four-and-a-half feet in girth.

According to Loudon, C. torulosa was introduced in 1824, and discovered by Buchanan-Hamilton in 1802. The seeds from which our tree sprang were brought home from India by a friend of the family, in company with seeds of Abies Webbiana, Picea Gerardiana, Picea excelsa and Cedrus Deodara. Of the two last-named, plenty are in evidence to-day, but the two former have left not "a wrack behind." Yet, ever hopeful, over their ashes, I have—metaphorically speaking—raised the banner and device "Resurgens," and given them an opportunity of redeeming their questionable and disappointing past.

In helping on the process of identification of these *prima facie* similarities, referred to above, a clue may be found forthcoming in a name bestowed, presumably in reference to the presence of glands on the leaves, a microscopic individuality not held in common with the similarities mentioned, C. macrocarpa and C. sempervirens. Torulosa is the diminutive of the Latin word *torus,* which in its first sense signifies a protuberance. From thence it comes to be applied to many and various uses, architecturally to a moulding, domestically to a bed, pugilistically to the muscles of brawny arms, and more personally to a system of hairdressing, as a tuft of hair. Torulosa would, for instance, describe the fuzzy-topped head gear of a short-cropped Australian aboriginal, and would equally apply to the bobbed coiffure of a fashionable damsel of the world to-day.

I have attempted in my *Characteristics of Conifers,* as simplified a method as I could devise of identifying this and other Cypresses. From its pages I will only essay a short summary here, confining it to some differences that exist between C. torulosa, C. sempervirens and C. macrocarpa. I will not attempt to drag into the arena of discussion the more uncommon C. Goveniana, of California, nor the lately-arrived C. Duclouxiana from Yunnan. First, be it noted, it is the presence of glands upon the leaves which distinguishes C. torulosa from its similar congeners. To examine into these, I own, suggests a magnifying glass inspection, and that is a microscopic process, unbeloved, unpursued and unemployed by the generality of amateurs, who like to learn their lesson, on the more dashing principle of "A sight should suffice." Secondly, there are to be reckoned with, and learnt from, the cones or strobiles—their shapes, sizes and habits. The cones of C. sempervirens ripen the first year, and vary in size. The cones of C. macrocarpa ripen in the second year and do not vary in size; they are much larger than those of the C. torulosa, which also ripen the second year.

And now I come to the branchlet systems of this tree of trees. If one takes a spray of either C. macrocarpa or C. sempervirens and lays it on the table, it will be noticed that it cannot lie so flat, as, for instance, a sprig of Fern, for the reason that the branchlets, of which it is composed, grow indiscriminately and radially round the main branches, whereas a spray of C. torulosa, with branchlets arranged in one plane, should lie flat. Sometimes it deviates a little from the strict path of rectitude, but is sufficiently orthodox to show a distinction from the other two.

Fourthly, there are the differences in shape and outline of these three Cypresses, in their sub-fastigiate forms. While the shape of C. macrocarpa and C. sempervirens may be described as columnar or even clump-headed, C. torulosa affects a soaring peak or flame-shaped top. Anyone then observing a Cypress tree of this shape looming against the sky-line should awaken to the fact, and announce—if he wishes to make an impression—that here is a tree of rarer appearance than C. macrocarpa or C. sempervirens, and one, in my humble opinion, of a more picturesque outline. *Chas. Coltman Rogers, Stanage Park, Radnorshire.*

ESCALLONIA RUBRA PYGMAEA

Sir Frederick Moore, late of Glasnevin Botanic Garden, saw our plants of this Escallonia last summer and informed me that this very pretty little rock shrub originated from a so-called Witch Broom found on an ordinary Escallonia rubra. Cuttings taken from this congested growth retained the dwarf, close-growing habit, and resulted in this dwarf variety. At times this pygmy form produces a shoot or two which reverts to the free-growing type. These should be cut out so soon as they are noticed, for we find that if they are left it is only a question of time before the whole plant reverts to the type. I have noticed similar instances in that useful little rock-Conifer, Juniperus communis compressa, J. hibernica compressa of gardens, which proves the origin of these dwarf forms. I freely endorse the praise *J.* (p. 96), bestows on the pygmy Escallonia; its long flowering season will make it popular when the plant is better known. *W. E. Th. Ingwersen.*

RAISING NEW DAFFODILS.

I feel that I must write a few words in reply to Mr. Longford's letter in *The Gardeners' Chronicle* of February 5. I would state that the credit for raising Narcissus Owen is due to the late Mrs. R. O. Backhouse, on whose lawn at Sutton Court I first saw it growing. I am afraid Mr. Longford's letter may discourage some would-be Daffodil enthusiasts, and for this reason I am writing these few lines. The Royal Horticultural Society's little *Classified List of Daffodil Names,* besides containing the names of a great number of existing Daffodils also contains an "obituary notice" of a considerable number which have, for all useful purposes, passed out of existence, and the new Classification List will, no doubt, contain many additions to both lists. Only a very small percentage of named Daffodils become commercial varieties, and out of the many new sorts appearing each season, only a few survive. It is difficult for a collector to pick out the best. Personally, I like to see a variety growing and if I am attracted by the flower at close range I step back, say, ten yards or so and if I am then satisfied with its general deportment, I make my decision in its favour. But this method is not always possible, and the collector has to use his judgment when he sees a new flower at a show, or perhaps a description of it in a trade catalogue, and we all know that catalogues are inclined to deal in superlatives. He may confine himself to varieties which have received awards, or take the advice of a friend who can make the selections for him, but in such case, he will not derive the keen satisfaction from his collection that he would had he made his own selections. However carefully the selection be made, it must be always borne in mind that the best varieties of to-day will be losing their places as years go by.

When I commenced to raise Daffodils twenty-eight years ago, I might have regarded success as well-nigh impossible after seeing Mr. Engleheart's productions of that time, but it does not do to be scared at the start, and I owe a great deal to the kindly advice and encouragement freely given by such dear old friends as the late Mr. Peter Barr, Mr. W. Baylor Hartland, Rev. G. P. Haydon and Mr. Robert Sydenham, all keen enthusiasts in their day. Each season I bought what I considered likely varieties for my purpose, limiting myself to £5 for a single bulb, and I well remember giving most serious consideration to raising my limit when Will Scarlett stood at £20 a bulb, and I have often regretted that I passed it by. I began to work with some sixty commercial varieties of the time, and amongst the many crosses I made, it was in my second season that I hit upon a lucky one; I crossed Sir Watkin with pollen taken from some forced blooms of poeticus ornatus; this gave me a batch of useful early varieties of the Incomparabilis type, some self-yellow and many with a suffusion of orange in the cup, all robust and free-flowering; it is twenty-two years since they first flowered, but now their stocks run into thousands.

A seedling has a long journey before it reaches the goal of public favour; prizes and awards help it along to some extent, but it has to gain the confidence of the gardening fraternity before it is really established. I think the awards that the R.H.S. gives to varieties that have passed successfully through the three years' trial at Wisley will be very valuable. I do not think the public object to long lists of names, and at Daffodil shows it is highly desirable that all flowers should be named if only to enable those who have seen them to talk about them, and I would like to see far more young and enthusiastic exhibitors, especially in the seedling classes. It is only from a vast number of seedlings that we can hope to get what is really wanted. A beginner need not be discouraged by the wonderful modern flowers; I thought the limit of progress more nearly reached twenty-five years ago than it is now. In 1914 I dropped out of the running, and when I recommenced after the war, I found I had lost a great deal of ground, but now I have once more my annual batches of seedlings flowering and am as keen or keener than ever, being convinced that with the material now at my command there are greater possibilities than ever before. If the beginner does not care to spend much money on the newer varieties let him work on the older ones; let him try Maximus for early yellow trumpets. I am still using this fine old variety as a seed parent with confidence. Then there is the old Barrii Beacon; I am sure this is still capable of producing many fine things; my double Llinos was a seedling from Beacon crossed with the pollen of the old double N. Telamonius plenus; Princess Mary and Minnie Hume have each proved themselves very good seeders. N. cyclamineus is a doubtful asset; I have raised seedlings and intercrossed them to the fourth generation, and they are very lovely and of a particularly clear luminous yellow throughout, but, so far, I have not one that has any constitution, although some flowers are the size of Emperor. With N. triandrus calathinus I have had no success, but on the other hand I have a number of nice stocks from the pollen of N. triandrus albus, and the best of these are from the seed of the yellow trumpet P. R. Barr. These are a few ideas by way of encouragement to the beginner, and I would especially emphasize the importance of an imaginative mind. To sit by the fire of a winter's evening and raise new Daffodils of peerless beauty is a delightful pastime; to work for these ideals when the spring comes; to live in a dreamland of expectation for four years until the first bud appears on the first bed of seedlings; to watch it expand and even though it be not after all a real swan in perfect plumage, is a pleasure. Some day a flower will appear and justify all the care given to the work. *W. A. Watts, St. Asaph.*

NOTICES OF BOOKS.

Sanders' Orchid Guide.

A large amount of research, a wide experience of Orchids and their cultivation, and much loving care, have contributed to the production of the 1927 edition of *Sanders' Orchid Guide.** This edition is dedicated to the memory of the late Mr. H. F. C. Sander, by his three sons, who are the authors.

A well-worn former edition is always within easy reach of our editorial desk, and we are sure the new volume with its 450 pages, will be equally well used as a book of ready reference. Sanders' Orchid Guide deals only with species, well-marked varieties and natural hybrids, the garden-raised hybrids and varietal forms, whose names are legion, being dealt with in the separate and also useful work, the *List of Orchid Hybrids*. The descriptions are excellent and written in language readily understood by the most amateurish of amateur Orchid growers, and yet they are botanically correct. The different genera are described in alphabetical order, and in each genus the species are similarly treated. Synonyms of genera and of species are also given in their alphabetical sequence. The height of the plant, its time of flowering, colour, style of inflorescence and habitat are all indicated in the description, while the letters S. I. and C. indicate whether stove, intermediate or cool treatment is desirable.

General cultural advice is given at the beginning of the volume, while special details of management are indicated under each genus.

A charming foreword by Sir Frederick Moore follows the introduction, in which the authors pay a kindly tribute to the work of Mr. E. W. Cooper, an esteemed employee who helped in the compilation of the volume. Of particular interest are the notes on the cultivation of Orchids in such distant and widely-separated countries as Ceylon, South Australia, Japan (by Viscount Ijuin) and Trinidad, while very practical advice is also given concerning Syringing and Spraying; Hybrids and Seed Raising; Imported Orchids, and Orchid Diseases.

The book is thoroughly well-printed in clear type. There are wide margins to all the pages and the whole of the subject matter may be read with ease. A serviceable binding is provided; the outside measurement of the volume is eight inches wide by ten-and-three-quarters inches deep, while its thickness, practically one-and-a-quarter inch, gives some idea of the immense amount of work entailed in its production.

Vegetables for Home and Exhibition.†

The maintenance of an ample and varied supply of vegetables is a matter of paramount importance in most gardens, and not a few gardeners have come to grief because of their failure to meet the demands of their employers—not always the gardeners' fault, by the way—notwithstanding their skill in flower gardening, as plantsmen and as fruit growers. Although the kitchen garden is too frequently the last place to which a garden owner will take his visitors, it is by the quality and amount of food supplied by this department that the gardener is ultimately judged. The "Glory of the Garden" calls forth admiration, but Carnations and Chrysanthemums, Roses and Rhododendrons, stately trees, wide-spread grass, flower-flecked pools, glowing herbaceous borders and interesting rock gardens, are all "too bright for Nature's daily food" and before and after the enjoyment of beauty we needs must come to the table.

Fortunately, the cultivation of vegetables and salads is not now regarded as one of the meaner occupations of the gardener, and it is due in no small measure to Mr. Edwin Beckett's enthusiasm that the kitchen garden and its produce occupy a higher position in the economy of the garden and in the great horticultural exhibitions of to-day, than they did half-a-century ago.

As our pages have shown, not every cultivator agrees with Mr. Beckett's method of cultivating the soil, especially for vegetable crops, but whether they agree or not, they have nothing but admiration for him, for in a very real sense he has "delivered the goods," and has done so over a very long period. The soil at Aldenham is naturally unkind, but by pursuing the methods he advocates, Mr. Beckett has compelled the uncongenial earth to yield her bountiful increase. The kitchen gardens, the orchards, the flower borders, the great beds of shrubs, and the fine young trees at Aldenham, all demonstrate the success of his methods.

As a cultivator, Mr. Beckett occupies an unique position in the horticultural world, and although comparatively few professional and amateur gardeners are able to visit the Hon. Vicary Gibbs' fine estate at Elstree, all may read Mr. Beckett's new book and discover therein how he deals with every kind of vegetable crop, including salads and herbs. The directions are simple and concise; every sort of vegetable grown in British gardens is dealt with, and there is an extremely useful calendar of operations, in addition to planting and sowing tables. Naturally, soil cultivation is reviewed at some length, while rotation of crops—an immensely important and interesting subject—receives the attention it deserves, and is illustrated by diagrams showing how rotation may be practised. The common insect, fungous and animal pests of the kitchen garden are discussed at the end of the volume.

Although Mr. Beckett's book is written primarily to assist gardeners in their business of producing vegetables of fine quality and in sufficient quantity for the needs of the establishment, they serve, it contains a large amount of information regarding the growth, preparation and display of vegetables for exhibition. Mr. Beckett objects strongly to the oft-repeated observation that exhibition vegetables are of little value for the table. His own idea in regard to the exhibition of vegetables is that it encourages gardeners to improve their methods of cultivation, select the best varieties, increase the productivity of the kitchen garden, and demonstrate to the public what skill and energy may accomplish.

Mr. Beckett's book may be used freely, because it is well-bound; it is easy to read, by reason of the excellence of the printing and paper; it is a work of great practical value, embodying half-a-century's experience; it is a pleasure to handle and good to look upon, freely illustrated and well indexed. All concerned in its production are to be heartily congratulated upon what appears to have been to them a pleasurable task.

The Gardener's Year Book.

This new publication* deals with a variety of matters of horticultural interest, and the low price should ensure it a large sale, for there are nearly 400 pages of text and eight illustrations. The text includes a list of the chief Horticultural Colleges and Schools, Horticultural Societies, Botanic Gardens, tables of weights and measures, horticultural fixtures for 1927, reproduced by permission from *The Gardeners' Chronicle* Almanac for 1927; and a host of other useful information, making the book a real work of reference. Articles on many branches of gardening are contributed by well-known horticulturists, and the Editor is to be congratulated both on enlisting the services of so many experts and the choice of subjects dealt with. They include "The English Garden in the Past," by Eleanour Sinclair Rohde; "Herbaceous Plants, New and Old," by Mrs. Philip Martineau; "Plant Hunting in Many Lands," by Ethel Campbell Kennedy; "Rabbit-proof Plants," by the Rt. Hon. Sir Herbert Maxwell; and "The Value of the Garden in the Nutrition of Man," by J. L. Rosedale. The editing has been done very carefully, and the names of plants referred to are spelled correctly. It is somewhat strange that in the list of Botanic Gardens, Oxford University Botanic Garden, which is one of the oldest in existence in this or any other country, is dismissed with two lines, whereas the garden at Edinburgh is discussed in four pages.

**Sanders' Orchid Guide*, Revised (1927) Edition. Messrs. Sanders, St. Albans. Price 31/6, post free.

†*Vegetables for Home and Exhibition*, by E. Beckett. Simpkin, Marshall, Hamilton, Kent and Co., Ltd., 17, Ave Marie Lane, E.C. 4. Price 15s. net.

**The Gardener's Year Book*, 1927. Williams and Norgate, Ltd., 14, Henrietta Street, W.C. Price 3s. 6d. net.

ROSE GARDEN.

FARRER'S THREEPENNY-BIT ROSE.

May I endorse all that Mr. Bowles has written (p. 147) on the subject of this remarkable plant. As a neighbour I have been privileged to see it at all seasons of the year, and desire to add that in his description Mr. Bowles has been extremely moderate and matter of fact. We are most of us acquainted with the garden catalogue that describes some flower or other as " a real gem," that closer acquaintance causes us to discard as mere " paste." The " Threepenny-bit " Rose at any time of the year deserves to be classed as a first-class piece of garden jewellery, and, when in bud, or in blossom, one of those plants it is worth while going a considerable distance to see. Its great sprays, six feet and more in length, studded with a cloud of salmon-pink blossom from tip almost to the butt, strike the eye in June just as much as do the White Daphne and Viburnum fragrans, " Threepenny-bit's " present bed fellows, strike it in February. *Cuthbert James.*

THE ROSE TRIALS AT WISLEY.

The report of the annual meeting of the Royal Horticultural Society, which appears in your issue of February 12, gives details of the questions asked in regard to the Rose trials at Wisley. Mr. Robert Fife asked : " whether the special judges appointed to recommend awards in the case of Rose trials now being conducted at Wisley made any recommendations, and if so, what is the nature of them, and are they likely to be given effect to ? " Mr. Chittenden, Director of Wisley Gardens, is stated to have replied that the recommendations had been acted upon, and on the questioner asking to what extent, the reply was " as far as possible." That reply did not satisfy Mr. Fife, and rightly so. He then moved : " That the special trial of Roses now being conducted at Wisley be abandoned." This motion was seconded. An amendment was proposed by Mr. Walter Easlea and was duly seconded. In the course of discussion, it is reported, Mr. Chittenden was asked what the recommendations of the judging committee were, and he was understood to reply that these recommendations had not come before the Wisley Committee. He tried to prove that the trials had served their purpose, and that the varieties selected by the judges had proved a great success when planted in the Rose Garden at Wisley.

Concerning the latter point there can be no doubt. What every lover of the Rose is concerned about, however, is not the Rose Garden at Wisley, but the Rose trials there. The question is a very simple one. Why is the Rose Garden a success, and why are the trials a failure ? Every grower of Roses who has seen the trials at Wisley must have observed for himself the state of affairs. It is simply deplorable and quite unworthy of the great Society responsible for it.

The Council of the Royal Horticultural Society did receive recommendations from the judges in regard to the trials. Mr. Chittenden admitted this in one part of his statement, and appears to have denied it later on. These recommendations were actually made at the last visit of the judges to Wisley. Mr. Chittenden was abroad at the time, but the recommendations were duly noted by Mr. Musgrave, who was Chairman of the Wisley Committee on this particular occasion, and it seems strange that they were not transmitted to the proper quarter.

It is difficult to understand the attitude of the Council in this matter. An amendment and a motion were put to the meeting, and neither appears to have been voted upon. Mr. Fife, however, received the assurance of the Chairman, Lord Lambourne, that the matter would receive the earnest consideration of the Council. In the interests of the Rose, that statement is very gratifying. Now that the state of affairs at Wisley has been brought home to the Council, it is to be hoped that every endeavour will be made to put things on a proper basis, and that the trials will be worthy of the R.H.S. *Rosarian.*

APIARY NOTES.

Before proceeding to practical matters, I must return to last month's notes, so far as to give the promised results of Mr. Lloyd R. Watson's work in artificial insemination of queens.

This is the description published in the *American Bee Journal* for February.—" The operation is performed under a binocular microscope, the stage of which is equipped with a Barbour pipette holder, which in turn grasps the barrel of a capillary syringe. . . The virgin queen is placed, back downwards, into a form carved out of a block of wood exactly to fit her body, the tip of her abdomen just projecting over the edge. She is secured in this position by several loops of silk thread thrown over her body and around the block. The point of the syringe is first pierced through the wall of the seminal pouch of a drone which has just been made to ejaculate by the stimulus of decapitation, and about two-tenths cu. mm. of the pearly-white mucus is taken up. The syringe is then projected on into the region of the active sperm, and this is taken up. The queen, fast on her operating table, is placed on the stage, the tip of her abdomen in the centre of the magnified field. The genito-anal plates are gently pushed apart with fine-pointed tweezers, while the loaded syringe is cautiously advanced into the vagina, and the sperm discharged there. As the syringe is slowly withdrawn, the mucus is forced out of the instrument and left to coagulate as a plug in the vulva of the queen, thus to prevent the escape of any of the semen, and to seal it away from the air."

Readers may judge for themselves whether such a highly skilful operation can ever be made part of the practical routine of a commercial queen breeder. Time will show, but there can be little doubt that this discovery is of quite another order from that of Mr. Gilbert Barratt, who not only proved Dxierzon's theory to be right, but gave us a method of improving our strain of bees which is well within the skill of any intelligent breeder. That the result of his work has proved most valuable is to be seen in the wonderful queens that Mr. Barratt has now begun to distribute. Mr. Watson, on the other hand, is purely a scientist, and the practical value of his discovery has yet to be demonstrated. At any rate, we need to remember, as Englishmen, that it was by an Englishman progress was first made possible, and what was only a German theory proved to be a universal fact.

Now for a few words of practical importance. This is the time of year when more stocks are lost than at any other. The winter has tested the judgment of the bee-keeper and proved whether or no he has left the bees sufficient food. Test each hive at once by lifting, or the first fine day, peep cautiously under the quilts. If food is short, and the weather still cold, feed with candy at once, but if the weather is mild, and the bees flying daily, give them warm syrup by means of a rapid feeder. Some advise a slow feeder. Do not have anything to do with such devices. They are slow torture. Give bees the syrup so fast as they can take it, and be assured they will make full use of every drop. No stimulation is necessary for any bees I have ever known beyond the consciousness of what Doolittle calls " millions of honey at our house." In the same way, never attempt to " spread " the brood. If the queen is worth her place she will spread the brood as fast as the cluster can cover it, and if she does not a new and better queen is wanted. Indeed, now is the time to watch the performance of all queens. Some people tell us to judge the queen by the amount of honey her colony produces. Certainly the honey crop is the great test of value, but the honey crop is decided within the next two months. If a stock builds up rapidly from now on, there will not be much doubt about the crop, and if not, there cannot be a crop. An old queen, or an inferior queen, now means no bees in quantity later, and a young queen of good strain now means slabs of brood right up to the honey flow, and a tornado of harvesters when the crop comes along.

See to it that the hive is snug and snugly placed. Cold winds hinder developments greatly. Heat is vital to a stock, and, as the bees have to make it all themselves, protect them from all avoidable waste. The gardener who watches so carefully the thermometer in an early vinery when the east wind blows its hardest does not need to be told to turn next to his hives and watch them too. A windbreak is vital. Plenty of food and conservation of heat is all a stock needs during the next few weeks. *John Mavie.*

NEW DISEASE OF FREESIA.

I have read Mr. Longford's article (p. 118) with much interest, but I am afraid I cannot give him much information concerning this new and troublesome disease of Freesias. My experience of it is very limited, but I am certain it is not due to insect pests of any sort on the foliage. So far as my own stock goes, it is not apparent, but the Whitewell stock shows evidence of it, and I think it would help if one could find out the how, when and where of its first appearance.

The variety Excelsior, so far as my experience went, was a poor grower, and as it is seven years since I grew it. I cannot remember whether the disease mentioned by Mr. Longford was present on the foliage. He states that seedlings fall victims to the disease, and as no fungus or bacteria can be found on the foliage, it leads me to think that the trouble is " in the blood." I wonder if Mr. Longford or any one else has examined the corms externally and internally as well, also the older outer skin of diseased corms. If there is no form of fungus or bacteria present, I suppose there is no means of infection on the foliage, so I cannot see how dusting with sulphur can have any effect.

I do not think I have found or heard of disease in any of the Dutch-raised stocks, which are the oldest in commerce. I wonder if Californian-grown stocks have it. The late Rev. J. Jacob had it in his stocks at Whitewell, but how did it occur ? Possibly Excelsior " blood " or close in-breeding weakened the constitution and by not taking immediate steps to control it, the trouble has spread.

If no form of infection can be found on leaf or corm, I think the trouble must be a hereditary one, and therefore I presume more difficult to cure. *G. H. Dalrymple.*

FRUIT GARDEN.

BIENNIAL CROPPING IN APPLES.

As a contribution to the discussion on biennia bearing in Apples which has been carried on in recent issues, it may be worth mentioning that American growers claim to keep most varieties in a state of regular bearing by giving a dressing of nitrate of soda two or three weeks before blooming. Incidentally, they find that this gives them a fuller set of fruit. In the case of some varieties which have the biennial habit in a very pronounced degree this treatment does not overcome the trouble. One of the American experiment stations has started a trial of the effect of a second dressing of nitrate of soda given in mid-September of the " off " year in the case of these stubborn varieties. The idea, suggested probably by a somewhat similar experiment which was carried out in this country, unfortunately without proper control trees, is that the autumn dressing helps the trees to store carbohydrate materials which they can use in the spring for the formation of fruit buds to bear in the following year, which normally should be the next " off " year. Some indications of success are reported.

I have, on several occasions, given a spring application of nitrate of soda to trees on grass land, and am doing so again this year, not with much hope of influencing bearing, but because I have found it the best way to get growth in these conditions; and some of my trees, as already mentioned, would be all the better for a little more vigour. To test the effect on bearing the treatment would have to be conducted over a series of years, and then it would not be conclusive unless proper controls were arranged. American writers say that trees of low vitality in grass will nearly always respond to nitrate of soda; and I think they are right. In the case of plantations under clean cultivation, I have never obtained much result from the use of mineral fertilisers, and now always use farmyard manure or, more often some organic substitute, such as shoddy or meat meal. *Market Grower.*

VEGETABLE GARDEN.

CELERY TRENCHES.

It is an excellent practice to prepare Celery trenches quite early in the year, for early preparations result in the soil being more amenable to banking than when it gets dry from sun and wind, and further, the work is heavy and more or less tiring if deferred until hot weather sets in. Another consideration favouring early preparation of the ground for Celery is that some gardeners make other use of the trenches before planting them with Celery. Two such uses include the raising of various seedlings and giving protection to early, half-hardy subjects. This custom, however, is not to be seriously advocated in good gardens, as it disorders the trenches and tends to rob the soil if much plant-raising be done.

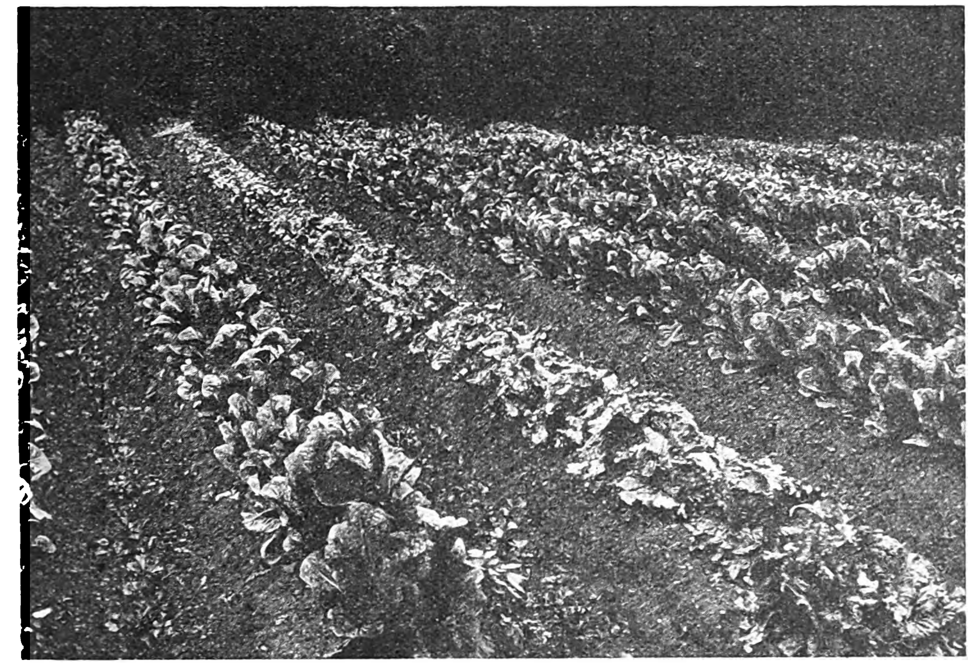


FIG. 84.—LETTUCES BETWEEN CELERY TRENCHES.

Cropping on the banks by the side of the trenches, as shown in Fig. 84, is another practice to which objection can be raised, but not so seriously as in the former case, because such planting does not interfere with the rooting material of the Celery. But planting too thickly must be guarded against, and still more, allowing the crops to remain until they are so big as to exclude light and air from the Celery plants.

Intercrops suitable for planting on the banks are, however, very few, the one most generally grown being Lettuce. This crop may be either sown direct on the bank and the plants thinned in the usual way or raised elsewhere and transplanted. Turnips and dwarf French Beans are other crops suitable for this position. Later sowings of Radish may also be made on these ridges of soil, the first sowing having been made in the trench itself. Two other possibilities are the first outdoor sowing of early Carrots and of the earliest Brassicas.

Not every gardener practices the cropping of Celery banks or ridges, but where there is a shortage of ground the system is worth adopting to gain the extra crop; also in the case of gardens run commercially, where every foot of space has to be utilised.

Respecting the actual making of Celery trenches, much interest attaches to the way they are prepared in different counties. Around this district there is a great aversion to making trenches wide enough for double planting, and I have yet to see such a trench about here in market gardens and small private places. The distance between the rows allowed by most of these growers is one yard only, never more than forty-two inches, and the trench itself one spade wide. Such alleys are extremely neat-looking and suitable for a single row of plants; but with these narrow rows there is always the danger of the sharp sides slipping or crumbling before the Celery is dug for use, yet the narrow base and correspondingly steep bank has the great advantage of the plants being practically immune to water-logging in wet seasons. The contrast between these narrow rows and the broad ones made in the average private garden is most noticeable. Manure is used, but not dug in the trench; it is simply laid on the bottom of the trench and covered by trimming down the banks on both sides.

A special spade is used by Celery-growers in this district, the blade being perfectly flat and straight, as distinct from the usual concave blade of most garden spades. I have not seen its like in any other county it has been my lot to garden in, and a Bedfordshire ironmonger informed me that this type of spade is made to order for certain parts of this county. *C. Turner, Ampthill Gardens, Bedfordshire.*

RHUBARBS TOBOLSK AND STOTT'S MONARCH.

These two varieties of Rhubarb are not very well-known, and a few notes on them may prove of interest.

Tobolsk is a choice variety and possesses a distinctly good flavour, said by some to be suggestive of stewed Plums. The stalks are a dark red colour on the outside, but the inside colouring is not so intense. They grow from fifteen inches to eighteen inches long, are rather thin and deeply grooved. The leaves are quite small, dark green in colour and very hairy. It is one of the earliest varieties, but, unfortunately, a poor grower, and cannot be recommended for its weight of produce, but simply as a variety for the connoisseur.

The late Rev. W. Wilks, who was recognised as an authority on flavour, both in fruits and vegetables, thought most highly of this variety, and possessed a splendid bed of it in his garden at Shirley.

Stott's Monarch is an entirely different variety, very coarse in every respect, but undoubtedly one of the best for use as a preserve. It is a most unattractive and unappetising looking Rhubarb. The sticks are long and exceptionally thick; the outside colour is a dull green, the inside a paler shade of the same colour, and the flesh is extremely acid. The leaves are very large and a pale glaucous green. This variety is a robust grower, but one of the latest to start into growth.

Although any Rhubarb may be used for making jam, this variety is especially good for the purpose. *J. Wilson, Wisley.*

HOME CORRESPONDENCE.

Lathyrus tuberosus.—Mr. T. W. Briscoe's note on p. 73 adds a new county to those already recorded as having produced specimens of this plant. Miller Christy summarised these records in the *Journal of Botany* for July 1910, and J. C. Shenstone wrote some further notes on it in the December issue of the same year (see also Gibson's *Flora of Essex,* 1862, p. 88, where there is a good coloured plate). The plant is well established in Essex at Fyfield and in Canvey Island, and has been recorded also from Devon, Durham, Surrey, Sussex, Norfolk, Suffolk, Glamorgan and Lincolnshire; some of these records are, however, open to doubt, and in most of the others it is an obvious accidental introduction. Essex, Suffolk and Sussex appear to be good localities for it, but there is very little, if any, doubt that it is in no sense a native British plant, being so commonly distributed on the continent and easily introduced with Corn or other produce. Mr. Briscoe omits to mention one of its pleasantest attractions, viz. its sweet scent. I have it in my garden here, and it comes up all over my rockery by virtue of its underground stolons, and reaches a height of four feet to five feet when trained up supports. The tubers are scarcely small, except at first, as I have dug them up when three to four inches in length and an inch thick. I grew my stock from seed from the Canvey Island plants. Each tuber sends out several stolons which come up over a square foot or so of ground and the growths are best trained together up a galvanised netting (or similar) cylinder. My plants seed fairly freely, but by no means abundantly. *C. Nicholson, Hale End, E. 4.*

—— Lathyrus tuberosus was found in 1907 growing on a bank of the G.W.R. near Keynsham, Somerset, and is probably there still; previous to that it was also discovered in one or two other places in Somerset. I have it in my garden, grown from seed, but I find it only a weakly grower. *Mrs. E. J. Thatcher, The Manor House, Chew Magna.*

Good Daffodils for Forcing.—I can endorse the statement made by *G. S. D.,* on p. 127, that King Alfred is a suitable variety for early flowering under glass and lends itself admirably to gentle forcing. Our bulbs were potted on September 27, and plunged in ashes for ten weeks; they were then placed in a cold frame for a period of four weeks, being afterwards grown on a shelf in a cool greenhouse. The first blooms, which opened on February 15, were of good colour and size, and the stalks attained a height of eighteen inches. The foliage is stiff and does not require staking. Another fine Daffodil amongst the same batch is Spring Glory. This variety is more floriferous than the former and one that I can well recommend for growing under glass. For blooming at Christmas, I find there is none that can compare with Cervantes. Plants comprising a batch of this variety, potted and plunged on August 19, were in full bloom at the festive season and were greatly appreciated. Although of small size, practically every bulb developed two, three and some four blooms. Like *G. S. D.*, I use no manure beyond adding a five-inch potful of bone-meal to each bushel of compost. *W. E. Wright, Tregarth Gardens, Creigiau, Near Cardiff.*

Deep Trenching.—I have been very interested in the discussion on Deep Trenching, and I thoroughly disagree with Mr. E. Beckett's methods (p. 135), when he advises bringing the subsoil to the surface. In the soil there are millions of micro-organisms—bacteria, which decompose the raw materials so that plants can absorb them. These bacteria practically live on humus and cannot exist in the absence of air, therefore they cannot survive much below a depth of twelve inches; from these facts it cannot be beneficial to plants to bring the sour subsoil—which is generally deficient in humus—to the surface and bury the bacteria-peopled soil. I thoroughly recommend deep trenching, but prefer to keep the subsoil in its natural position, digging into it large quantities of organic material that will not only form humus but facilitate drainage so that in time the subsoil becomes much improved. *Gavin Brown, Craigo Gardens, by Montrose.*

——*G. D.* invites, on p. 73, other readers to give their views on deep trenching. I always advocate trenching, but after one experience in Sussex, I have been very chary of bringing the bottom spit to the surface, as Mr. Beckett advocates. I had occasion when there to take in a piece of a field to augment the kitchen garden, and trenched it two feet deep, bringing the bottom spit to the top. The cowman on the estate had a part of the same field as a garden for a new cottage. He simply dug his ground one spit deep as in ordinary digging. Both pieces of land were planted with Potatos, and he lifted a splendid crop, while I did not get so many out as I put in! I have a crop of late Broccoli in the garden here which was planted without digging the land, after Strawberries—which had occupied that ground some years—were cleared off. The plants look just as well as Mr. Beckett's do on the trenched ground shown in Fig. 217, vol. LXXX. I have seen huge plants grown at the end of fields where horses had made the soil hard when turning during ploughing and clearing operations. *Grigor Roy.*

The Daffodil Fly.—My attention has been called to an article on "The Daffodil Fly," by Mr. A. J. Bliss, published in your issue for December 25 last. I was most interested in the information contained therein, more particularly as I have been working on bulb fly problems for the past three years, and it seems that a few additional notes might be of interest. My earliest record for Merodon equestris, indisputably hatched in the open is April 7, and the last emergence date June 20, these records both being made in South Devon. The period of maximum emergence is usually the latter half of May, egg-laying being commenced in early June. I have no information regarding the possibility of the grub remaining for two seasons in the bulb, but at the same time there is no doubt that half-grown and three-quarter-grown larvae can and do migrate through the soil and enter healthy bulbs. Any one who doubts this ability has only to confine one in a tin with a sound bulb overnight. By the following morning the larvae will be found to have entered the bulb, usually at the junction of the basal plate. I wonder if the larvae found by Mr. Bliss in his plots of covered bulbs could have been the progeny of early-hatched flies, which had entered by migration through the soil in this way. With regard to the last paragraph in the above-mentioned article, in the course of examining several hundred bulb samples obtained from commercial growers, I have recorded numerous cases where the small bulb flies, Eumerus tuberculatus and E. strigatus have constituted the sole cause of injury. Experiments carried out have shown beyond dispute that, given favourable conditions, the larvae will enter bulbs originally entirely healthy. A publication covering this work will appear in an early number of the *Bull. Ent. Research. W. E. H. Hodson, Seale-Hayne Agricultural College, Newton Abbot.*

GARDENS AT OLYMPIA.

The display of various types of gardens at the Ideal Home Exhibition at Olympia, West London, has become a permanent annual institution, and is invariably visited by a large number of the public.

With a greater attention to co-ordination on the part of the management, the general effect of the score or so of gardens is much more pleasing than formerly. Immediately on entering the Garden Annexe the visitor cannot fail to be agreeably impressed by the genial atmosphere of graceful displays of spring flowers.

A freer style of design has been adopted by the exhibitors, which is admirable, but from the individual and the general points of view, it is no easy matter to co-ordinate effectively a number of self-contained garden exhibits, often of totally different character, yet at Olympia the attempt has been exceedingly successful, and from several view points entrancing garden pictures are to be enjoyed.

As we have already suggested, the first general impressions are distinctly good. From a point a little to the left of the entrance to the Riviera Tea Garden a charming view, across the full width of the building, may be obtained. Here, with the most pleasant rock garden of the Central Garden Supplies Co. in the foreground, across the glowing trusses of Azalea mollis and the graceful standards of Pyrus Malus atropurpurea in Mr. G. G. Whitelegg's Round Garden, on to the elegant marble fountain which tops the Italian garden so well arranged by Messrs. J. Carter and Co., is a scene of such beauty as seldom, if ever before, has been presented by any exhibition.

There are several other "garden pictures," worthy of prolonged enjoyment, and these the visitor will doubtless readily discover. But, although the general merits of the gardens are of high quality, these remarks do not apply equally to all. Nor could it be expected, in the nature of things and the circumstances, that it would be so. It is to be expected that the garden designer has what, for a better word, is termed a *motif*. In most of the Olympia gardens this is readily apparent, but in a few the visitor is left puzzled and wondering what the general idea is. Certainly these few gardens were not conceived by what the management is pleased to term "Master Designers," or if so, there was considerable failure in the making.

We were pleased to note that in most of the gardens much more attention has been paid to "finish" than on some former occasions, yet there is still room for further improvement in this respect. As with too many of the present-day houses, the designer seems to have exhausted himself on the front elevation, leaving the remainder raw. This certainly should not be in an exhibition such as that at Olympia where, in most instances, the visitors may walk all round the garden as well as within it.

The general idea of the organisers was that the selected nurserymen should demonstrate to the public the many and varied possibilities of quite small parcels of ground, and of nearly all possible shapes. On this account the Garden Annexe provides a valuable object lesson to the garden lover, which he is evidently keen to take the fullest advantage of, and there is a most agreeable diversity of styles for his consideration.

For the person of means, who wishes to have a fine garden in a relatively small area, Messrs. J. Carter and Co. have made a fascinating Italian garden. The elegant marble fountain, artistically set amid upright Cypresses is on a terraced knoll. In the middle distance twin circular fountains provide ample jets of water, and those are surrounded by narrow beds of Dicentra (Dielytra) spectabilis, while on the lower ground there are luxuriant flower beds of Bouquet Pink and Bouquet Blue Cinerarias, also of the pretty little Azalea Hinodigeri. The whole garden is flanked with lofty Cupressus behind borders of fruiting Oranges and flowering shrubs, while just the right proportions of excellent Daffodils supply the needful spring glow of rich yellow colour.

Forced shrubs are freely used in many of the gardens. Messrs. J. Cheal and Sons have very successfully grouped a generous quantity at one end of the formal garden of Polyantha Roses. Beautiful standards of Wistaria, Laburnum, Brooms and Japanese Cherries rise gracefully above the floriferous bushes of Lilacs, Diervillas, Prunus triloba fl. pl., Magnolias and other subjects.

In his handsome Round Garden, Mr. G. G. Whitelegg has planted exceedingly good specimens of the valuable hybrids of Azalea mollis and A. sinensis. The chief are Emile Liebig, bearing trusses of orange-tinted flowers, Anthony Koster, of glowing yellow, and J. C. van. Thol, of vivid salmon-yellow shades. His specimens of Magnolia Soulangeana nigra and M. conspicua are also exceedingly good.

A satisfying border of forced shrubs in the garden of Messrs. L. R. Russell, Ltd., flanks the paved path leading to the excellent little conservatory, built by Messrs. Wm. Duncan Tucker and Sons, where, in the middle, there is a Banana (Musa Cavendishii) carrying a large bunch of ripening fruit. On the side stages plants of Azalea indica, Epiphyllum truncatum, little Oranges in full fruit, and other subjects render it gay and bright.

Shrubs also enter largely into the scheme of Messrs. Skelton and Kirby, whose "English Spring Garden" is in three sections. They have planted Magnolias, Forsythias, Pyruses, Prunuses and Heathers.

Rock gardens are fairly numerous. We have already mentioned that of the Central Garden Supplies Co., and this is particularly successful in its homely, satisfying simplicity. It is such a garden as one could happily live with. The boulders are correctly placed, and with a wise restraint which permits the proper planting of fair breadths of plants. It has been made and planted with the view of providing suitable aspects for the four seasons, and for the growing of all kinds of alpines. The many rock garden plants are all well-grown examples. The centre of the site has been laid out as a paved plateau with beds of Hyacinths and surrounded by tasteful borders of flowering shrubs.

Mr. Herbert Brook has a low, spreading rock garden with pools of water. The Orpington Nurseries Co., have a large, undulating garden of rockery interspersed with broad sweeps of Heather and Grass overplanted with graceful young Birch and Beech trees. Near the entrance, the Country Service Association has a gentle slope with rock and pools. In addition to his formal garden, Mr. G. G. Whitelegg has a well-designed rock garden and, at one end, a magnificent specimen of Daphne Mezereum.

In their space, Messrs. R. Wallace and Co. have contrived to illustrate several distinct types of garden. The chief feature is an ornate stone, rag-tiled summer-house, with a paved enclosure containing a canal and pool. The enclosure contains borders of Tulips, while all around there are banks of many interesting and valuable flowering shrubs—Pyruses, Prunuses, Magnolias, Brooms, Rhododendrons, Azaleas, Lilacs and Daphne Mezereum. Messrs. Bakers, Ltd., have a village pump, with a trough from which the water overflows over a cobbled causeway to a pool. On a raised border there are good examples of various Rhododendrons, Viburnum Carlesii, Brooms and other shrubs, with breadths of Primula Wanda and Iris reticulata. Messrs. Burton Holt (Chelsea), Ltd., have a pair of handsome wrought-iron garden gates with ornamental stone pilasters set on a stone terrace. Messrs. J. Klinkert filled two spaces with a great variety of Topiary work, chiefly in Buxus sempervirens.

A garden of Perpetual-flowering Carnations, planted by Messrs. Allwood Bros., is an excellent example of the special garden. It contains a great many plants of the best varieties, in full bloom, while smaller beds are filled with Dianthus Allwoodii. Generous breadths of bright colours are present in the Anemone Garden of Messrs. Reamsbottom and Co., who have large quantities of the brilliant Anemone fulgens, as well as of their well-known strains of St. Brigid and De Caen Anemones. Mr. Baldwin Pinney has a large terrace garden planted with many varieties of Violets and Primula Wanda.

SOCIETIES.

BRITISH MYCOLOGICAL.

A meeting was held at University College, London, on Saturday, January 22, when, in the absence of Dr. E. J. Butler, President, Dr. G. H. Pethybridge took the chair.

The first paper was by Mr. W. Buddin and Miss E. M. Wakefield, on Rhizoctonia Crocorum (Pers.) DC. and Helicobasidium purpureum (Tul.) Pat. Rhizoctonia Crocorum has long been known as a root parasite of numerous plants and various suggestions have been made as to its mode of reproduction. The important new fact is now added that there is a very intimate association between the Basidiomycete Helicobasidium purpureum and Rhizoctonia Crocorum, though the exact nature of the relation has not yet been ascertained. Root-rot characterised by the presence of infection cushions which are typical of Rhizoctonia Crocorum has been found in every locality where Helicobasidium has been noted. Further, the association is so close that in two strains of Rhizoctonia isolated in the same way from infection cushions, conidia similar to those obtained from Helicobsidium have been produced in culture. Morphologically, the hyphae of Helicobasidium are exactly similar to those of Rhizoctomia, having the same type of branching septation and absence of clamp connections; the nuclear characters are also similar, both fungi having sometimes one, but more often more nuclei in a cell. Seven strains of Rhizoctonia have been compared with numerous spore isolations of Helicobasidium as to cultural characters. Both fungi show considerable variation in colour and type of growth. Conidia belonging to the genus Tuberculinia are frequently produced in cultures of Helicobasidium and similar conidia have been found in strains of Rhizoctonia. In cultures of Helicobasidium which originate from multiple spores, there sometimes develop strains in sub-culture which are sterile and acquire the dark colour characteristic of the sterile Rhizoctonia strain; a similar variation has arisen in a strain of Rhizoctonia. Successful inoculations with the production of typical root rot have been obtained with four strains of Rhizoctonia, and with three of the dark coloured strains described from Helicobasidium spore culture.

There were a number of observations which were discussed. While there have been inconsistencies in behaviour, it is possible that these are due to the fact that the organism is very variable, and that not all strains are equally parasitic.

The balance of the evidence is considered to favour the view that Helicobasidium purpureum (Tul.) Pat. is the perfect stage of Rhizoctonia Crocorum (Pers.) DC.

Dr. R. C. Woodward followed with an account of his studies on Podosphaera leucotricha, the Apple Mildew. Axillary buds of the Apple become infected a full season before opening, entry being effected at an early stage. The scales of the buds often leave a gap at the tip through which mycelium from the shoot passes and becomes established between the tissues within. Fruit bodies on the terminals of spurs are also infected from the infected fruit bud immediately preceding and adjoining the rudimentary buds. In all bud infections the mycelium becomes established within the tissues early in the season, and later penetration is prevented by bud scales. Sections show that living mycelium occurs between all their composing elements, and on the approach of winter that situated between the exterior scales loses its vitality. Haustoria are present and appear to play the main part in perennation, as no thickening of hyphae or chlamydospores were seen. In infection, a small area of the host under the germ tube near but not at the tip, takes on a light brown or yellow colour. A pit-like cavity in the cuticle suggests chemical rather than mechanical action. A heavily infected young bud never attains its normal expansion or shape but tends to be slightly or decidedly dwarfed or somewhat elongated. No specialised races of the fungus were found. Conidia produced on the various Apple varieties, on Quince and on Pear are capable of bringing about normal infection of each host plant.

After lunch Miss Kathleen Sampson gave an account of Anthracnose of Red Clover. The causal organism of Anthracnose of Clover in this country is Gloeosporium caulivorum, Kirchn. (=Kabatiella Karak.) The attack is almost entirely confined to the stems and petioles. The general effect of a field attack is one of blackened and broken stems, withered petioles and brown, dead leaves. At an early stage of infection badly infected plots, show a lighter appearance than healthy plots, due to the large number of leaves which, hanging from wilted leaf stalks, expose their lighter under-surface. From the farmer's point of view an attack of " scorch " means a considerably reduced hay crop and weakened plants. Secondary shoots are thrown up by badly infected plants before the first hay crop has been taken, and the second cut is therefore reduced, even if it should escape an attack of the disease. The fungus appears most severe on early-flowering Red Clovers. Although within a strain individual plants of Red Clover showed marked resistance to the disease, an immune plant has not yet been discovered. A characteristic of the fungus, both in culture and on the host, is the scanty development of mycelium. In diseased tissues it is obscured to a large extent by the brown material which ultimately fills the cells attacked by the fungus. A series of inoculation experiments of various Leguminous plants showed that in addition to Trifolium pratense, only T. hybridum, T. repens and T. suaveolens proved capable of infection. The behaviour of the fungus in culture was described: any cell of the fungus may bud off conidia. Penetration of the host cells was observed from the third to the fifth day after sowing spores on the stem. The first indication of entrance was a distinct brown colour in the wall of the epidermal cell upon whch the spore rested. The entering hyphae appear to travel for some distance in the cell wall immediately below the cuticle, but did not penetrate the cell. The cell walls were distinctly swollen for some distance in front of the germ tubes. The parasite travelled at first only in the cell walls and intercellular spaces, the path of invasion being marked out by a brown discoloration of the cell wall, and finally by dark almost black cell contents. The mycelium was scanty and difficult to trace until the tissues were completely disorganised, when coarser strands of mycelium were found from which the conidiophores subsequently developed.

The growth of the fungus on different culture media was outlined. Sclerotia-like bodies were formed on several media. Under laboratory conditions infected seeds give rise to diseased plants, but so far infection by this method has not been observed in the open, and the probability of the occurrence in nature appears to be small; here the fungus persists during the winter months in the petioles of leaves infected in late autumn in which the fungus develops very slowly. A short comparison was made with Colletotrichum Trifolii which has not, so far, been recorded for Europe. The general symptoms are the same. In inoculation experiments the germ tube forms a spherical appresorium from which arises a penetrating hypha which becomes intercellular, passing from cell to cell.

Mr. E. W. Mason followed with a paper " On the Naming of a Dark-Spored Hyphomycete." This was of great systematic interest but does not lend itself to a summary here.

Mr. J. Ramsbottom continued his series of " Fragmenta Mycologica." A lantern slide was shown of a clump of seventeen field Mushrooms with their stalks joined; another of an old group of mycologists—M. Cooke, W. G. Smith, Broome and Plowright—and one of the recent Hereford Foray. An account of the late C. G. Lloyd, the American mycologist, was then given.

As usual, the papers were followed by interesting discussions.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held on Friday, February 18, the members of Committee present were Mr. J. B. Adamson (in the chair), Mr. R. Ashworth, Mr. A. Burns, Mr. A. Coningsby, Mr. D. A. Cowan, Mr. J. Cypher, Mr. J. Evans, Capt. W. Horridge, Mr. A. Keeling, Mr. D. McLeod and Mr. H. Arthur (Secretary).

Mr. A. T. Sutton was invited to sit with the Committee.

First Class Certificates.

Odontoglossum Monarch var. Brilliant.—A magnificent variety, flowers very large and of fine shape; all the segments are heavily blotched with rich violet, with white margins. From Mr. J. B. Adamson. A Silver-gilt Medal was also awarded.

Cattleya Rajah, Llewelyn's var. (*Enid* × *Empress Frederick*).—A splendid variety with large, well-shaped flowers; the broad sepals and petals are of a rich mauve colour; lip large, rich velvety purple with rose spots. From G. V. Llewelyn, Esq.

Awards of Merit.

Cattleya Tityus var. Imperial Prince (*Octave Doin* × *Enid superba*); *Laelio-Cattleya H. T. Pitt, Llewelyn's var.; L.-C. Serbia, Llewelyn's var.; Cypripedium Eurybiades, Llewelyn's var.; Dendrobium ?, Hesketh Park var.;* and *D. plumptonense, Llewelyn's var.* All from G. V. Llewelyn, Esq.

Odontioda Brackenhurst, Bronze Queen; O. Sensation (*Oda. Vuylstekeae* × *Odm. crispum*); *Odontoglossum Queen of the Belgians var. Perfection;* and *Cypripedium Elise, Towneley Grove var.*—From J. B. Adamson.

Odontioda Juno, Woodside var. (*Odta. Coronation* × *Odm. Eximillus*).—From Messrs. Sutton Bros.

Awards of Appreciation.

Cypripedium Archmanii (Archimedes × Beekmanii).—From Mr. J. B. Adamson.

Dendrobium plumptonense, Prince's Park var.—From G. V. Llewelyn, Esq.

Botanical Certificate.

Pleurothallis Roezlii, from Mr. J. B. Adamson.

Cultural Certificates.

To Mr. J. Howes, for Odontioda Sensation, and to Messrs. Sutton Bros. for Odontoglossum naevium.

Groups.

Mr. J. B. Adamson (gr. Mr. J. Howes), staged a group for which a Gold Medal was awarded; Odontoglossums in variety, including O. Monarch var. Brilliant, O. Queen of the Belgians var. Perfection, O. harvengtense, Pitt's var., and O. Pegasus var. Stanley Baldwin were conspicuous, as also were Odontioda Brackenhurst var. Bronze Queen, O. Sensation and O. Margaret, with Cypripedium Elise, Towneley Grove var., C. Perseus var. Ruth, Lycastes of the Skinneri section, Dendrobium Wardianum in variety, and Pleurothallis Roezlii.

Mr. G. V. Llewelyn, Norwood Avenue, Southport, was awarded a Large Silver Medal for a group of Cattleyas, including C. Rajah, Llewelyn's var., and C. Tityus var. Imperial Prince, Laelio-Cattleya H. T. Pitt, Llewelyn's var., and L.-C. Serbia, Llewelyn's var.

Messrs. J. Cypher and Son, Cheltenham, staged a group to which a Silver Medal was awarded. This contained Dendrobium aureum, D. Cybele nobilior, D. Ainsworthii, Cymbidium Albatross, C. Alexanderi, Odontoglossum nebulosum, Masdevallia Bocking Hybrid, Coelogyne cristata var. Lemoniana and Cypripediums in variety.

Messrs. Sutton Bros, Hassocks, Sussex, staged a group to which a Silver Medal was awarded. In it were Odontioda Juno, Woodside var. O. zebrina, and O. Royal Gem; Dendrobiums, Brasso-Cattleya Griselda, and Cypripediums in variety.

Messrs. Keeling and Sons, Bradford, staged Cypripediums, Odontoglossums, Odontioda Jasper, and Angraecum sesquipedale.

The Secretary reported the death of Mrs. Gratrix, a keen supporter and exhibitor from the inception of the Society.

TRADE NOTES.

EXPORTING PLANTS TO NEW ZEALAND.

In December last we received three cases of plants from England containing about five hundred different kinds, and as your paper is read by so many interested people, I would like to give a little advice on the subject of packing, as I believe it is possible to send almost any plant out here safely. One lot containing about two-hundred-and-twenty plants came through with about ten losses. If one consignment containing 120 plants had been properly packed, the losses would not have exceeded five. These were all in pots, and the case was divided into two sections; those in the bottom section arrived in perfect condition, but the top set was a mixed mass of broken pots, soil, plants and moss. I mention this to show the need for careful packing. Some of the plants (about twenty-five per cent.) I shall save, but it will be impossible to tell what they are, so that for want of a little extra care, the good work is undone. I believe the most successful consignments to New Zealand will be those sent in pots, so long as wet moss is packed around them and the pots are made secure.

It is very important to consign through a reliable shipping firm in London; see that the plants are not packed one day earlier than needed by the shippers; pack all plants with wet moss around the pots and thoroughly soak the moss before using it; see that the pots are firmly secured when in the cases, so that there is no possibility of movement during the journey; ensure that there is plenty of air space in the case; make an opening on each side of the case, at least three inches wide, and cover it with perforated zinc; do not make the cases too big, as small cases are easily handled and so do not get the shaking large ones do; send an invoice to the shipping agent and also one direct to the consignee, to arrive before the cases; send the proper agricultural certificate to arrive at the port of destination before the plants; do not allow the shipping agents to despatch the plants unless proper arrangements have been made with the steamship company, because it is only waste of time and money to send plants as general cargo.

A member of the Alpine and Rock Garden Society (Nelson) recently had £38 worth of plants sent from England; all were dead on arrival, as the shippers had sent them as ordinary cargo. Repetitions of such failure will kill business; this is a matter that should be taken up by nurserymen at home.

A big consignment is due to arrive in March, and I shall report its condition in due course. *A. Wilkinson, Examiner Street, Nelson.*

Obituary.

Mrs. D. Airdrie.—Many friends in England as well as in Scotland will be very sorry to hear of the great loss sustained by Mr. David Airdrie, Dunlop House Gardens, Dunlop, Ayrshire, by the death of his wife, on the 22nd inst. Mrs. Airdrie has been seriously ill for some considerable time but bore her trouble with great patience. The sympathy of all his friends will be extended to Mr. Airdrie.

W. H. Etterley.—Mr. Etterley, Assistant Superintendent of the Public Parks, Shanghai, died suddenly at Shanghai on December 29, 1926. Mr. Etterley commenced his gardening career at Belvoir Castle Gardens, under Mr. W. H. Divers, and as he proved very studious, he was chosen by the late Mr. F. W. Burbidge as an assistant at Trinity College Gardens, Dublin. His next move was to Kew, where he obtained further knowledge. He left there in 1909 to take up work at Shanghai. Mr. Etterley was forty years of age, and leaves a widow and two children to mourn his loss.

Julien Potin.—Many Orchid lovers will regret to learn the news of the death of one of their number, M. Julien Potin, of Neuilly, Paris, who passed away at the end of January. M. Potin, one of the best-known amateur Orchid-growers, had a perfect passion for Orchids, of which he had a magnificent collection at his beautiful home at Neuilly-sur-Seine. He was President of the Orchid Committee of the French National Horticultural Society, and founded special prizes to be given to exhibitors of Orchids at the Society's exhibitions, notably the coveted Potin Cup. M. Potin will be sadly missed by his friends and colleagues, by whom he was greatly beloved and esteemed. He was a Commander of the Legion of Honor. The hybrid Orchid genus of Potinara (Brassavola × Cattleya × Laelia × Sophronitis) was named after M. Potin.

W. P. Thomson.—We regret to record the death of Mr. W. P. Thomson, which occurred on Friday, February 25, at his home, 25, Bollo Lane, Chiswick, in his seventy-eighth year. Mr. Thomson retired from the editorial staff of *Gardening Illustrated* at the end of last year, but he contracted influenza and died within eight weeks of his retirement. He was born on September 27, 1849, at Easter Skene—an estate about eight miles to the north of Aberdeen, where his father was a gardener. At the age of eighteen years he was apprenticed to Mr. John Clark, who was then gardener at Brodie Castle. Leaving these famous gardens, he went to Fyvie Castle as outside foreman and from there he passed to Linkfield House Gardens, Musselburgh. In 1874, he joined the staff of the Royal Horticultural Society at the old Chiswick Gardens, as clerk to Mr. A. F. Barron, who was then Superintendent. In 1887, his association with Mr. William Robinson commenced, and he became sub-editor of *The Garden*, continuing in that position until 1900, when he took over the editorship of *Gardening Illustrated*, which was founded on March 1, 1879. Mr. Thomson was a member of the Floral Committee of the Royal Horticultural Society. For many years he was a member of the Executive Committee of the Royal Gardeners' Orphan Fund, and Treasurer of the United Horticultural Benefit and Provident Society. In February, 1926, he was honoured with the award of the Veitch Memorial Medal in gold for his contributions to horticultural journalism. The funeral took place at Acton Old Cemetery, Churchfield Road, on Monday, February 28. Mr. Thomson will always be remembered for his devotion to duty and his painstaking care in all that he undertook.

ANSWERS TO CORRESPONDENTS.

Flowers for Cut Blooms.—*E. J. C.* The following varieties of annuals and perennials are suitable for use as cut blooms. The plants may all be raised from seeds. *Red*: Acroclineum roseum, various Asters, Cacalia coccinea, Carnations in variety, Godetia Schaminii, Dwarf Rocket Larkspur and others, Lychnis chalcedonica, Lychnis (syn. Agrostemma) Coeli-rosa, Papaver nudicaule miniatum, Pyrethrum roseum, Rhodanthe Manglesii, Salvia splendens in variety, Scabious in variety, Statice sinuata rosea, Stocks in variety, Wallflowers of red shades and Zinnias. *Blue*: Anchusa italica Dropmore variety; Centaurea odorata, Campanula persicifolia, Centaurea Cyanus, Delphinium sinense, various Stock-flowered Larkspurs, annual and perennial Lupins in variety, various Myosotis, Nigella Miss Jekyll, Statice sinuata Puce Blue, Salvia patens, Scabious caucasica, various Stocks, and Veronica spicata.

Pelargoniums Unsatisfactory.—*S.* The rooted Pelargonium cuttings have been submitted to examination, but we cannot discover that the unsatisfactory condition is due to any fungus, although Gloeosporium Pelargonii occurs in a very small degree in one or two of the brown spots. The condition of the young plants suggests that they have been subjected to a very low temperature accompanied by an excess of atmospheric moisture.

Communications Received—J.—E. M. D.—A. G. —J. B.—W. C.—J. M. W.—S. J.—J. A. P.— T. W.—A. D. W.—S. E. A.—O. C.—A. B.—H. N.

NEW HORTICULTURAL INVENTIONS.

These particulars of new Patents of interest to readers have been selected from the Official Journal of Patents, and are published by special permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

2,794.—McHardy, R. H.—Grass, etc., cutters. January 31.

2,679.—Ludlow, E. B.—Devices for applying weed-killer. January 29.

2,409.—Rasspe, A.E.G.O.P. and R., and Rasspe, Sohne, P. D.—Mowing, etc., machines. January 27.

2,218.—Rhenania-Kunheim Verein Chemuscher Fabriken Akt.-Ges. — Chemical manures. January 25

1,419.—Adelantado, L.—Manufacture of phosphate fertilisers. January 17.

Specifications Published.

255,018.—Audistere, C., and Lowenfield, H.—Syringes.

265,040.—Remy, F.—Electric traction system for agricultural implements.

264,606.—Miller, G. J.—Coulters of seed-drills, steerage hoes, and similar agricultural implements.

264,637.—Kilburne, W. R.—Bee-keepers' appliances.

258,833.—Soc. Nouvelle Des Etablissements A. Maguin.—Device for the recovery of the radicles and small waste products from Beetroots.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1/- each.

Abstract Published.

A novel device recently patented enables plants grown in pots and bowls to be adequately supported without pushing sticks into the mould and breaking up the roots. The inventor is Mr. E. T. Dolton, of 3, Cutliffe Place, Bedford, and the patent No. 263,387. The device consists of a metal base member adapted to be arranged below the surface of the soil and having a tubular member extending from its face to just above the soil to support a stake carrying wires, etc., for securing the flowers. Four spring clips are arranged at intervals to grip the edge of the bowl or pot so that the tallest of plants are maintained perfectly steady.

THE LATEST TRADE MARKS.

This List of Trade Marks, of interest to readers, has been selected from the Official Trade Marks Journal, and is published by permission of the Controller of H.M. Stationery Office.

MILKANIC.

475,380.—Emulsifying and mixing machines in class 6.—Milkanic, Limited, 48, Dover Street, London, W.1. February 9.

MILKANIC.

475,381.—Emulsifying and mixing machines, being Agricultural and Horticultural machines in class 7.—Milkanic, Limited, 48, Dover Street, London, W.1. February 9.

WIN-ORZ.

475,531.—Apples in their natural state, sold in boxes.—The Winthrop Orchards, Incorporated, 9-10, Richey and Gilbert Building, 102, North First Avenue, Yakima, County of Yakima, State of Washington, United States of America. February 9.

MAGNUM.

474,775.—Fertilisers.—Douglas Chafford Dering, "Nonneys," Birdshill Road, Oxshott, Surrey. February 2.

THE
Gardeners' Chronicle

No. 2098.—*SATURDAY, MARCH* 12, 1927.

CONTENTS.

Advertisements and open spaces... ... 172
Alpine garden—
  Androsace sarmentosa 181
  Phyteuma orbiculare 181
  Saxifraga Burseriana tridentina ... 181
Black Currant Bud mite 183
Books, notices of—
  A Year in My Flower Garden 182
  Gardens for Town and Suburb ... 182
Bulb garden—
  Gladioli 176
  Montbretias ... 176
Cobaea scandens in a public hall 173
Coreopsis auriculata var. superba 183
Dahlias in public parks 172
Economic plants of the Bay Islands ... 180
Florists' flowers—
  Out-door Chrysanthemums ... 176
Foreign correspondence—
  Leucadendron argenteum 183
Forest degree at Aberdeen University ... 173
Forestry Commission, changes in the ... 172
"Gardeners' Chronicle" seventy-five years ago 173
Horticulturists' Easter tour in Holland ... 173
International Horticultural Congress, Vienna 172
Kew, Primulas and Rhododendrons at ... 171
Legal nuisances ... 182
Lilies 179
Lilies, diseases of ... 178
Myosotis, winter-flowering 184
National Playing Fields Association, a new branch of the ... 172
Naylor, Mr. H. ... 172
Obituary—
  Corry, W. 186
  Neilson, Daniel ... 186
  White, John ... 186
Parks and gardens, public 183
Potatos immune from wart disease, new varieties of ... 173
Primroses and pollenation 184
Societies—
  Birmingham Gardeners' 186
  Gardeners' Royal Benevolent Institution 186
  Guildford and District Gardeners'... 186
  Royal Horticultural 184
Soil Conditions and Plant Growth ... 171
Sugar 172
Tokyo, interesting plants at 177
Trees and shrubs—
  Salix cinerea var. Medemii 176
Trenching, deep ... 183
Vegetable garden—
  Tree Onions ... 182
Week's work, the ... 174

ILLUSTRATIONS.

Cobaea scandens on the roof of the Alexandra Hall, Weymouth 173
Dahlias in Regent's Park, a border of 179
Euryale ferox in the Botanic Gardens, Tokyo 177
Lilium philippinense formosanum 176
Narcissus Tazetta, contorted 176
Naylor, Mr. H., portrait of 172
Salix cinerea var. Medemii 175
Saxifraga Burseriana tridentina, seedlings of 181
Thomson, W. P., portrait of the late 186

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 41.8°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 9, 10 a.m. Bar. 29.6. Temp. 46°. Weather, Sunny.

Soil Conditions and Plant Growth.

Science in its endeavour to discover the reasons for things suffers from several curious disadvantages. The work is necessarily slow, and mankind is apt to be impatient; when one piece of work has been accomplished by science, it becomes part and parcel of the common stock of science—everybody knows it, and those who know least are most surprised that anyone should claim credit for science for having made such a self-evident discovery. Moreover, no sooner has science solved one of its problems than, like so many Richards in the field, others come into view and invite attack. Thus the work of science, like that of a hard-working housemaid, is always being discharged, but never accomplished. It is scarcely possible to read Sir John Russell's fascinating account* of soil conditions and plant growth without encountering in every chapter illustrations of the last of these reflections. Thus, less than a century ago, science attacked the problem of the source whence plants obtain supplies of carbon. So late as 1840 it was believed—in spite of good evidence to the contrary—that vegetation derives the vast mass of its carbon compounds from the humus of the soil—for do not plants thrive best in well-manured land? Then Liebig showed that the old discoveries of neglected pioneers of plant physiology are correct, and that the atmosphere is the source of the carbon contained in plants. The humus theory fell into disrepute . . . but science is still engaged in trying to find out whether, after all, plants do not obtain some carbon compounds from the soil, and if so, whether the fact may not be made use of in practice. There is no need, however, for men of science to be unduly apologetic for the slowness of the progress of discovery in agricultural science; a certain modest satisfaction with the results which have been achieved should mark their attitude to their achievements. For truly much stands to their credit. Within a life-time of men not very old, the full story of the marvellous migration of nitrogen through the world of living things has been told; the part played by Leguminous plants in seizing hold of atmospheric nitrogen and bringing it into combination and thereby into use in the plant body and thence to the animal body; the similar part played by the nitrogen-fixing micro-organisms in the soil whereby after other soil organisms have wrought changes of decay on complex nitrogen compounds—residues residing in dead things—the final product, ammonia, is oxidised and nitrates produced in the soil with the result that plants, relieved from the danger of nitrogen starvation, may flourish and having flourished die, bequeathing to the world the nitrogen compounds contained in their bodies. No less interesting at Sir John Russell's hands is the record of the progress which is being made in discovering how the various conditions of soil and climate which affect plants continue to promote, regulate and limit the growth of plants. There are, for example, valuable lessons to be learned by every practical grower in those chapters describing the effects of soil temperature, moisture, aeration, etc., on the growth of plants. For, as indeed the cultivator well knows, unless all these factors are propitious, failure is bound to result. Every gardener sooner or later comes up against instances of one factor limiting the fertility of his soil. It may be lack of water, or too much water in the winter. Whatever it be, until that defect is remedied, it is not possible to increase soil fertility. It is useful therefore to keep in mind the doctrine of limiting factors and for the gardener to apply it by asking himself which of the many possible factors it is that is limiting the growth or fruitfulness of his plants. Any gardener who reads attentively Sir John Russell's account of the behaviour of plants in diverse soil conditions will derive not only advantage, but satisfaction. He will discover why it is that different plants enjoy such different soils. Some, as, for example, Buck Wheat, do not mind if their roots are ill supplied with air; others, like Barley, cannot do without plenty of air at their roots. Willows and Rice can go on growing even though the percentage of oxygen in the soil is as low as 0·5, but Maize and Peas need all and more than all the 21 per cent of oxygen of ordinary air. Who, knowing that, would have the soil about the roots of his Peas other than loose and friable. Of all the advances made by agricultural science during the past twenty years, the most important are probably those which demonstrate the complexity of soil, not only in its physical, but also in its biological aspect. With the progress of pure chemistry and particularly that concerning the properties of colloids, the study of the soil has entered on a new phase. If, as but rarely happens, any gardener who is engaged day in day out in bringing the soil of a garden into a more perfect and workable condition, has the leisure to peruse Sir John Russell's account of the colloidal properties of clay, he will be in a position to appreciate why it is that soils have such complex and sometimes paradoxical behaviour, and here and there he will get hints which help to explain why attempts to ameliorate soils are not always successful. Like facts, soils, and particularly clay soils, are stubborn things, and that not only to the man who has to work them, but also to him who tries to comprehend their composition. Needless to say, this is not an easy work. Knowledge of soil science is incomplete. Many investigators are in hot pursuit of it. They capture it in detail; but much still eludes them. Therefore, it is not to be expected that the author should give a simple, concise statement of our knowledge. He has done better than that; he has shown us how knowledge is being gained, and the direction in which the search for it is being pursued—a truly masterly work; hard to read, but full of mental nourishment.

Primulas and Rhododendrons at Kew.—In spite of the more genial weather of the last week, it is still rather too early for the above-mentioned outdoor flowers at Kew. The rosy-flowered Rhododendron mucronulatum is over—though a second flush has swept over some of the bushes, painting them in sharply against the sombre background of dark shrubs in the dell. R. moupinense is dying and fading away like a white ghost; and it will be a month yet ere the Primulas and Rhododendrons generally flower on the rock garden. But in the houses some interesting plants may be seen. In the alpine house, for example, Primula Fortunei and P. limnoica are in full bloom. The former is a small, mauve-flowered Chinese plant prettily powdered with snow-white meal. The flowers are loosely-arranged in a head, and hang down somewhat on fairly long pedicels in a style which at once distinguishes them from the Denticulata type. In its effort to hold up its head, the flower is thrust squarely forward, and becomes somewhat prognathous. P. limnoica is a pretty Burmese 'Denticulata,' with compact heads of purple flowers, distinguished by a long, blunt. toothed calyx and a still longer corolla tube jutting from it. It is not very mealy, and the meal, such as it is, is pale green. P. limnoica, by the way, is wrongly marked as a Tibetan plant, probably because every collector wants to go to Tibet, and, being unable to do so, contents himself with recording every plant which comes from within two hundred miles of the frontier as a Tibetan species! P. denticulata, from the Himalaya, a robust species, sending up several flowering stems, is also blooming bravely, but the scapes are still somewhat brief and squat. Two beautiful European species are flowering in the same house, P. marginata, with its refined, pale-lilac flowers, and beaded leaves, and the minute, rose-flowered P. Allionii. The former is a charming species, just the right size for the lower ledges of the rock garden, refined in every part. The latter, though small, is of so pure a colour as to defy comparison. In the large Temperate House the beautiful hybrid P. × kewense is to be seen growing in the Rhododendron beds with a light crimson-flowered P. obconica. The Rhododendrons include R. lutescens, which is a very pale, creamy, Chinese R. triflorum, and R. praecox, a charming cross from R. dauricum and R. formosum, with the colour of the former. R. praecox is as happy outside as in, and as it flowers when R. dauricum and R. mucronulatum are over, it is a good plant to possess. Another interesting, though scarcely beautiful hybrid in the Temperate House is a cross between

---

* *Soil Conditions and Plant Growth*, by Sir E. J. Russell. 5th edition. Longmans, Green and Co., 1927. 18/- net.

R. lutescens and R. spinuliferum. The cream flowers, suffused with the dull red of R. spinuliferum, have retained the narrow, tubular shape of the latter unimpaired, though somewhat enlarged. Two Azaleas are a mass of blossom in the Temperate House—the bright, sunny, yellow Anthony Koster, and the warm, flame-coloured J. C. Van Thol. Amongst the hybrids of Rhododendron javanicum are two in flower, Mrs. Heal, with cream coloured flowers and orange anthers (one plant has white flowers), and Souvenir de J. H. Mangles, which has torrid red flowers toned to deep salmon. The next to bloom in this house will be the Arboreums; already R. Delavayi album has a truss or two out, and so has a purplish Himalayan R. arboreum, true. There can be little doubt that the Chinese R. Delavayi is at most only a variety of R. arboreum; considering the mad surfeit of names in this genus, we should not feel the loss of a few.

A New Branch of the National Playing Fields Association.—On Tuesday, March 1, at a meeting held at Wakefield, under the presidency of Sir Edward Brooksbank, Bt., D.L., representing the Lord Lieutenant of the West Riding of Yorkshire, it was decided to form a branch of the National Playing Fields Association. There was a large attendance and many promises of support were made.

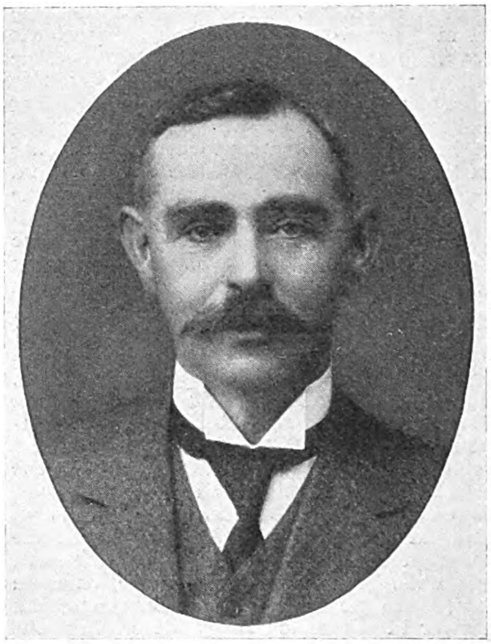
R.H.S. Plant-Collecting Expedition.—At the Annual Meeting of the Horticultural Club on Tuesday last, Mr. F. J. Chittenden, Director of Wisley Gardens, delivered an address entitled "Some American Impressions," giving experiences of his recent visit to that country as a delegate from the Royal Horticultural Society to the International Conference on Plant Sterility at New York, and at the International Congress of Plant Sciences at Cornell University. In introducing the lecturer, the Chairman, Mr. Gerald Loder, stated that one very interesting result of Mr. Chittenden's trip was that the R.H.S. is arranging a plant-collecting expedition to the Western States of North America on a moderate scale. Mr. Chittenden stated that one rock garden he saw in the Western States contained one hundred or more plants unknown to him. We hope to publish a detailed report of Mr. Chittenden's address in our next issue.

The Stamperland Orchid Collection. — Mr. Robert Paterson has purchased a residence at Ardingly, near Haywards Heath, and intends removing his collection of Orchids from Clarkston to his new abode in the South of England in the coming summer. The long distance from Glasgow to London and the time taken in transit is an acknowledged handicap to an exhibitor, and in view of the more convenient position in Sussex it is highly probable that the Stamperland Orchids will be more frequently seen in future at the R.H.S. and other shows held in London.

Devil's Dyke, Brighton.— The announcement of the recent sale of this picturesque place recalls the anxiety of the public to save it from the builder in the autumn of 1925, and the successful action taken by various bodies at that time to schedule the British earthworks encircling the Dyke under the Ancient Monuments Act. The Devil's Dyke is some 700 feet above sea-level, and from the highest parts may be seen on clear days the Isle of Wight, the Weald, Windsor Castle, Leith Hill and Box Hill. The purchaser is stated to be a well-known London solicitor and it is believed that the public need have no further anxiety as to the future of the Dyke.

Dahlias in Public Parks. — In view of the time for propagating Dahlias it is opportune to remind those responsible for the up-keep of public parks and gardens that no flower gives finer effect in large beds and forefronts of shrubbery borders than Dahlias, and although their season is a comparatively short one, they provide interest at a time of the year when bright flowers are most appreciated. The illustration on p. 179 (Fig. 90) shows a bed of Dahlias in flower in Regent's Park. For several years these plants have been grown very extensively in this London Park, and they seem to do as well in big towns as in the country. It will be remembered that in our issue for October 16, 1926, we published an account of the Dahlias in the old churchyards at Bermondsey, one of the most densely populated districts of the Metropolis, where they do exceedingly well. The special border illustrated in Fig. 90 includes a great number of varieties, and as the various sorts are of different heights, it is easy to arrange the plants to produce a bold expanse of beautiful flowers.

Mr. H. Naylor.—The unique garden that the late Lord Battersea so charmingly designed at The Pleasaunce, Overstrand, Cromer, and still maintained by Lady Battersea in a delightful manner, is fairly well known to east-coast visitors because the owner continues her interest in it and permits the public to inspect it on Sunday afternoons during the holiday season. Last year the gardens were opened on eight Sunday afternoons in August and September and were visited by over 14,500 people; a small charge is made and the proceeds—about £300 in 1926—given to hospitals and charities. Mr. H. Naylor, who has charge of the gardens and the care of Lady Battersea's house and grounds, has been gardener at The Pleasaunce for twenty years, and although the sandy nature of the soil is not conducive to the best results, he has, with the assistance of his generous employer, made these gardens rank among the most beautiful in the country. Mr. Naylor's gardening experience commenced in his uncle's nursery at Harrow, whence it was an easy transition to Tring Park, where he remained four years. In due course he filled positions in the gardens of Effingham Hill House, Aldenham House and Stanmore Hall, becoming gardener at Preston Manor, Brighton, and, later, at Piggott Manor, Elstree, and Harrow Weald Park, before going to The Pleasaunce, where he has done splendid work without advertising it.


MR. H. NAYLOR.

New Zoological Park.—An estate of 400 acres has been acquired by the Zoological Society of London, situated in the Chiltern Hills, in the neighbourhood of Tring and Dunstable, thirty miles from London. This is destined to be used as a country home for animals from the "Zoo," where they will be able to roam at large in surroundings approximating more nearly to their native habitats than is possible in Regent's Park. Included in the scheme, which is estimated to involve an expenditure of £200,000, is the creation of a bird sanctuary, which will be established at once; and preparations are also to be made for the reception in paddocks of animals "on holiday" from London. The larger and hardier animals are overcrowded in their present quarters, and it is the intention of the Society in future to keep only a selection of the animals in London, while the breeding stock and the bulk of the collection will remain in the country. We are glad to learn that it is not intended to spoil the natural beauty of the present site by any visible buildings or walls. The necessary shelters, etc., will be hollowed out of the hillside and enclosed by natural rock and plants.

Sugar.—Some interesting details of Sugar production were given by Mr. Ben H. Morgan in a paper entitled "The Sugar Resources of the British Empire," read before the members of the Royal Society of Arts on the 25th ult. Mr. Morgan stated that the total world Sugar production in 1924-25 was 22,866,000 tons, and of this amount 3,693,000 tons were produced in British possessions, of which British India produced 2,537,000 tons. The world production of Cane Sugar during the years given amounted to 14,701,000 tons, of which the Empire percentage was 25·1. Contrary to common belief, more Cane Sugar than Beet Sugar is produced, the amounts being 14,701,000 and 8,185,000 tons respectively. During the three years for which statistics are available, the annual importation of Sugar into the United Kingdom amounted to nearly 2,000,000 tons, of which seventeen to twenty per cent. came from various parts of the Empire. At the present time the Government is paying a subsidy on Sugar Beet grown in this country, but the subsidy, which is now 19s. 6d. per cwt. will be reduced during the next three years to 13s., and for a further three years to 6s. 6d., when it is the present intention that this subsidy shall then cease. Unless the cost of production can be brought down or the price of Sugar very substantially enhanced, it is by no means certain, said Mr. Morgan, that the industry will be able to continue without the subsidy.

Advertisements and Open Spaces.—Kent County Council are creating fresh bye-laws, at the request of many residents in the county, prohibiting the use of advertisement signs which tend to disfigure public parks or pleasure promenades, or spoil views of rural scenery. We trust that this example of public spirit and artistic appreciation will be followed by many other County Councils and similar public authorities.

International Horticultural Congress, Vienna. 1927.—The decision of the Bureau for the Arrangement of International Horticultural Congresses (Secretary, Professor Dr. J. M. Sirks, Wageningen, Holland), to hold the next International Horticultural Congress in Vienna, and to entrust the Horticultural Society of Austria with its management, as recorded on p. 77, was taken after the Governments of the States concerned as well as the authorities at the last International Horticultural Congress, Amsterdam, 1923, had been consulted, and in consideration of the fact that the Jubilee festivals in connection with the Centenary of the Horticultural Society of Austria will take place in Vienna. As a result of this resolution the Horticultural Society of Austria is planning a series of festivals and arrangements which will be terminated by the International Horticultural Congress which takes place from September 20 to September 25, 1927. The Secretary-General of the Horticultural Society of Austria is Mr. F. Kratochwjle, and the Secretary-General of the Congress, Dr. A. Bretschneider.

Changes in the Forestry Commission.—Intense satisfaction is being expressed in Scottish forestry circles over the re-appointment of Sir John Stirling Maxwell to the Forestry Commission. Few, indeed have given closer study to the subject than he, and great regret was expressed when, two years ago, Sir John ceased to be a member of the Commission, as then constituted. We have only to look back upon the fine work he has done for many years as member and Chairman of the Royal Scottish Arboricultural Society to realise the importance and the sanity of the choice now made. But there is another gentleman whose name would be warmly welcomed as a member of the Commission by those interested in afforestation in the North of Scotland. We refer to Mr. Sydney James Gammell, of Countesswells, Aberdeenshire. There are few, if any, landowners—or for the matter of that, skilled foresters—who know more about forestry than Mr. Gammell. For years he has been making elaborate experiments on his estates, from which many interesting and informative lessons have been adduced. We hope the time will come, and that very soon, when Mr. Gammell will take his seat on a Commission which would be ever so much the better for his vast knowledge and ripe experience in this important subject.

New Varieties of Potatos Immune from Wart Disease.—The Ministry of Agriculture and Fisheries has approved the following new varieties of Potatos as immune from Wart Disease: Aberdeen Favourite, Argyll Favourite, Cardinal, Doon Star, Duke of Perth, Earlyfield, Glencoe, Herald, Hopeful, and Macbeth's Castle. A complete list of the names of the varieties of Potatos officially approved as immune from Wart Disease may be obtained on application to the Offices of the Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W.1.

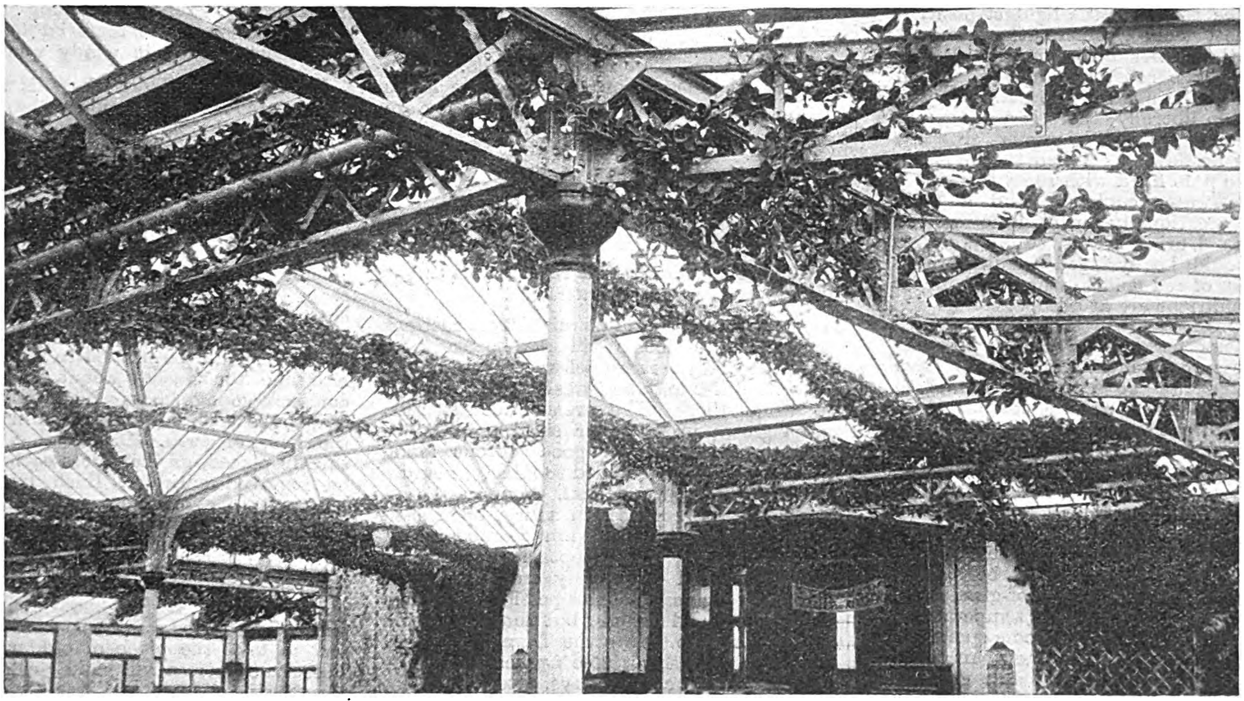


FIG. 85.—COBAEA SCANDENS, ON THE ROOF OF THE ALEXANDRA HALL, WEYMOUTH.

Forestry Degree at Aberdeen University.—The Senatus Academicus of Aberdeen University has decided to recommend the following additional regulations dealing with the degree in forestry: That forestry students should be required to take forest chemistry in the forestry department under the lecturer in forest chemistry, in place of a course in agricultural chemistry; that students for the degree of B.Sc. in Forestry be required to take a course in meteorology from a forestry point of view; that the candidates for the degree in diploma, forestry, be required to take the pre-registration course in physics and chemistry, before attending the course in physics, chemistry and geology in relation to the soil. Intimation has also been made that a course in forestry surveying, specially adapted for forestry students, has been arranged.

Horticulturists' Easter Tour in Holland.—The officials of the Brighton, Hove and Sussex Horticultural Society are arranging an Easter tour in Holland on behalf of members and friends—a holiday that will be both interesting and educative. The party will leave Harwich, via London, on April 14, and return from the Hook of Holland by the night steamer on April 20. The itinerary includes the Hague, Scheveningen, Leyden, Haarlem, Amsterdam and the Zuyder Zee, where Monnickendam, Maarken and Volendam will be visited. The cost of the tour is twelve-and-a-half guineas. Mr. F. Beal, and Mr. C. W. Hester will accompany the party and act as guides.

Cobaea scandens in a Public Hall.—The subject illustrated in Fig. 85 is worthy of note as being one of the most vigorous ornamental climbers grown. Introduced to this country from Mexico over a century-and-a-quarter ago, this extraordinary climber always appeals to plant lovers, and now that municipalities are constructing well-lighted and ventilated halls and winter gardens, Cobaea scandens may be grown in many of them, especially those with a glass roof. Such structures lend themselves to decorative displays and the ornamental iron girders may be clothed with beauty. The photograph of Alexandra Hall, Weymouth, from which the illustration is reproduced was taken last autumn when myriads of the flowers were open. Not only are these bell-shaped flowers beautiful, but when cut with long sprays they last a long time in water. The Alexandra Hall, in the gardens of the Borough of Weymouth and Melcombe Regis, was opened in March, 1923. It is provided with abundant light and warmth, and ample ventilation when necessary. Due advantage was taken when the foundations of the building were levelled up, to prepare the soil thoroughly against the walls inside where the Cobaeas were planted. This initial preparation was the secret of success and ensured the marvellous growth attained in so short a period. The dimensions of the hall are 100 feet by 100 feet. Cobaeas, growing from north to south, furnish the girders, the spiral, spring-like tendrils keeping the growths in position in a graceful fashion. Cobaea scandens is not hardy, and frost should not be allowed to penetrate any winter garden where it is grown. A note of warning is permissible; as the seed-pods are large and fairly heavy, they should be removed at any early stage where the Cobaea is trained above the audience. The foliage of Cobaea scandens is a healthy green colour, and invariably free from insect pests—a matter of considerable importance in a public hall.

Appointments for the Ensuing Week.—MONDAY, MARCH 14: United Horticultural Benefit and Provident Society's annual meeting; Guildford and District Gardeners' Association's meeting. TUESDAY, March 15: Winchester Horticultural Society's meeting. WEDNESDAY, MARCH 16: Royal Gardeners' Orphan Fund meeting. THURSDAY, MARCH 17: Wallington Horticultural Society's lecture. FRIDAY, MARCH 18: Manchester and North of England Orchid Society's meeting. SATURDAY, MARCH 19 Royal Norfolk Agricultural Association's exhibition.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Cheap Protection for Wall Trees.*—Being desirous of affording my Peach and Nectarine trees some protection, and disliking the unsightly wooden poles generally used for keeping the covering material off the trees, for wood I have substituted iron, which I think will last longer and answer the purpose better, besides being far less conspicuous. My plan is to drive pieces of iron into the wall for stays, the top ones being two inches from the wall, the middle ones three inches, and the bottom ones four inches. Through these I pass iron rods quarter-an-inch in diameter, which are drawn tight by means of nuts at either end of the rods. My blinds consist of very coarse canvas, which is two-and-a-half feet wide. It is cut into the required lengths, and four pieces are sown together. This forms a blind ten feet wide; it is tacked on to a lath the same length, one-and-a-quarter inch wide by three-quarters-inch thick. The iron stays at the top of the wall are turned up one inch at the ends, where the laths lay; two of the wires pass through the laths, which are thus kept firmly in their places. The bottom of the blind is provided with a very thin piece of wood, similar in shape to that used at the bottom of window blinds. A pulley is fixed into the wall at the top in the centre of each blind, and by means of a piece of string all can be raised or lowered in a few minutes. *Edgar Sanders, Kingswood Lodge, Gard. Chron., March* 13, 1852.

Publication Received. — *Varieties of Oats*, 1926. Department of Agriculture, University College of North Wales, Memorial Buildings, Bangor, from whom copies may be obtained, free of charge.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Thunias.—These Orchids should be repotted as they start into growth and before the new shoots commence to push forth roots. A suitable compost consists of a mixture of half peat and half loam, from which all the fine particles have been removed, with some Sphagnum-moss and dried cow manure, and sufficient coarse sand or broken crocks to render the compost open and porous. The pots should be well-drained, as during their season of growth these Orchids require an abundant supply of water at the roots. They may be grown singly in pots or several together, but in no case should they be crowded. The strong-growing T. Marshalliae, and the hybrids from it, such as T. Veitchiana, should be afforded more pot room than the small growers, such as T. Bensoniae, and its variety, T. Winniana. The plants should be placed in the lightest position in the warmest house, where they should remain until the flower buds appear. Water should be given the roots sparingly until the flowers appear at the apex of the new growths, as, if applied too liberally, there is a danger of the plants making long, vigorous growths, and producing no flowers. When the buds are formed and the pots filled with roots the plants should receive water copiously and a little liquid manure occasionally until the flowers are about to open. During bright, sunny weather the plants should be syringed frequently to prevent attacks of red spider, which will infest them if the conditions are at all dry.

Pleiones.—Some little time after the different species of these most interesting plants have flowered, they should be repotted, that is to say, placed in shallow pans in a compost consisting of good fibrous loam, A.1. fibre and peat fibre, cut into rather short portions and with all the earthy particles removed; these materials should be mixed with live Sphagnum-moss and sufficient fine crocks to render the compost open. Care must be taken not to break the new roots or the young growths. After repotting the plants they should be placed in a humid position near the roof-glass in a house having an intermediate temperature. Water should be supplied to the roots sparingly until they have entered the new material freely. Whilst the plants are in full growth, the treatment recommended for Thunias, as regards watering, is suitable also for Pleiones.

THE KITCHEN GARDEN.

By R. H. Crookford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Cauliflowers.—Young Cauliflower plants raised from seeds sown last August and wintered in cold frames, may, if hardened thoroughly, be planted on a warm, sheltered border, the soil of which should have been well-prepared previously, and enriched with a moderate amount of well-rotted manure. For this early planting, I advise drawing fairly deep drills, so as to give slight protection to the young plants. The trenches may be filled with soil by means of the Dutch hoe later, when the Cauliflowers commence to grow freely. When setting out the plants, lift and plant them carefully with a trowel; afterwards place a little soot around the stems to protect the plants from slugs. The rows should be about thirty inches apart, and a distance of eighteen inches allowed between the plants in the rows. The variety Early London is very reliable for this crop, its hardiness having been well proved.

Salads.—Seeds of Lettuces, both Cabbage and Cos varieties, may now be sown out-of-doors on a warm border. Radishes should also be sown in a similar position, Turnip-rooted varieties being the most suitable for an early supply. Lamb's Lettuce or Corn Salad should also be sown to provide variety, as well as Mustard and Cress, the two last being best sown for the present in a warm frame, or house. Maintain a supply of well-bleached Chicory and Endive so long as possible. Keep an eye on late Celery, and should the plants show signs of bolting, lift and store them in a dark, cool shed.

Potatos.—A few rows of early Potatos may be planted in a warm position where protection can be given when necessary.

Leeks.—Seeds of Leeks may be sown now on a warm border out-of-doors. This batch will follow that sown earlier, inside. Other sowings may be made for successional cropping so late as May to provide a supply until June of the following year.

Brassicas.—Make the first sowings of Cauliflowers, Brussels Sprouts, Broccoli, Cabbages and Savoys on a well-prepared seed-bed, on a warm border, out-of-doors. Net the beds as soon a the seeds are sown, using a small-meshed netting, or finches and linnets will attack the seedlings. When the latter appear, dust them occasionally with old soot, and thin them before they become crowded.

Globe Beet.—Should frames be available, a sowing of Globe Beet may be made. Thin the young plants early and remove the lights from the frames whenever possible, as they are only needed to protect the plants from very cold winds and frost. Guard against sparrows, which will attack the young leaves.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Chrysanthemums.—Plants raised from cuttings to produce large blooms will now be ready for shifting into larger receptacles. The stronger-growing varieties may be transferred to six-inch pots, while those of a weaker constitution may be grown in fifty-four sized pots. The compost may consist of good fibrous loam, which should not be chopped too finely, manure from an old Mushroom-bed, bone-meal and sand. Store the compost in a dry, open shed so that when used it can be made moderately firm by ramming. The receptacles and crocks should be washed thoroughly and allowed to dry before being used. After potting the plants place them in cold frames, but some provision must be made to cover the frames at night in cold, frosty weather. The frames should be kept fairly close for a few days, after which the lights may be removed entirely whenever the outside conditions are favourable. Decorative and single varieties that were rooted last month may now be transferred singly to sixty-sized pots; the soil for this potting may be somewhat similar to that recommended for the large-bloomed varieties, but it should be first passed through a coarse sieve. Late varieties may still be propagated to produce flowers as late in the season as possible. Old stools that have been retained to produce cuttings for raising stock to grow in six-inch pots should be kept free from insect pests.

Begonias and Gloxinias.—Seedlings of tuberous and fibrous-rooted Begonias raised from seeds sown in January should be carefully pricked off while still small, into a light compost, which may consist of equal parts of fine peat and loam that have been passed through a fine sieve, with a liberal sprinkling of silver sand. The compost should be watered freely the day previous to transplanting the seedlings. Do not discard the smaller seedlings, for in many cases these often produce the best coloured plants. Gloxinia seedlings will need the same treatment. Rooted tubers of these plants should be started into growth in batches as required, using a light, open compost of fibrous loam, peat or leaf-soil, with crushed charcoal and sand added. The tubers may be started in shallow boxes, allowing sufficient space for the leaves to develop. When they are sufficiently advanced they may be transferred direct to their flowering pots, or, as an alternative, they may be placed in small receptacles and potted on as required. Careful watering is necessary at this stage, but when the roots are established in the new soil they will need a liberal amount of moisture. A moist atmosphere is required to promote quick growth; shade the plants from bright sunshine.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Newly planted Trees.—Whenever the soil is in a suitable condition, examine freshly-planted trees, also those which were root-lifted, pruned and replanted last autumn, and tread the soil firmly about the roots. Prune and train the branches at equal distances apart, after which prick up the soil to the depth of two inches to prevent it from becoming baked in dry weather, and apply a mulch of strawy manure.

Standards.—Newly-planted standard trees in orchards should be staked securely and the stems protected against sheep, rabbits and hares, if necessary. When fastening the trees to stakes, use some soft material to prevent the bark from chafing in windy weather.

Bush Trees.—Where there is not sufficient head-room for the extension of the main branches of tall standards, bushes may be planted in their stead. With well-chosen varieties planted in good soil, a quick return on outlay is attainable from Apples and Pears. The young trees should be pruned very carefully to form neat, well-balanced heads. Suitable shoots should be selected at equal distances apart, and these should be shortened more or less according to their length and strength each year, always cutting to a bud pointing to the outside of the tree. All young growths in the inner part of the tree should be pruned to a couple of buds. Examine the bushes about midsummer, and cut back young shoots which are likely to overcrowd the tree, to within five or six leaves at the base of each. Others that may be too thickly placed, or that cross each other, should be removed entirely. Bush trees should be set twelve feet or more apart, and if planted by the sides of paths, Currant or Gooseberry bushes may be interplanted until the Apple trees attain a good size. In all gardens where there is room, a few young trees of suitable varieties should be purchased annually, planted and grown on for a few seasons for filling gaps, and to take the place of old, worn-out trees. These young trees will yield good crops at once after they are lifted and transplanted, resulting in a great saving of time. Varieties of Apples are numerous and should be carefully selected to give a long supply of fruits. Useful dessert varieties are Beauty of Bath, Irish Peach, Ellison's Orange, Worcester Pearmain, Egremont Russet, Wealthy, Cox's Orange Pippin, Allington Pippin, Ribston Pippin, Laxton's Superb, Mannington Pearmain, Adams's Pearmain and May Queen. Cooking: Lord Derby, Stone's Apple, The Queen, Bismarck, Bramley's Seedling, Crawley Beauty, Lord Grosvenor, Lane's Prince Albert, Chelmsford Wonder, Sandringham and Annie Elizabeth.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Climbers and Shrubs on Walls.—Now that all danger from prolonged spells of severe frost is past, any necessary pruning of climbers and shrubs of a more or less tender nature that are used for furnishing walls may be undertaken. If such plants are properly managed, there should be little or no pruning to do at this time, in fact, they should be so managed that at no time should it be necessary to resort to drastic pruning and thinning; by this I mean they should be kept regularly within bounds, allowing shrubby plants to develop and furnish the space available.

In pruning flowering climbers and shrubs the time for the operation will depend on whether the plant flowers on the old or new wood; for example, Prunus triolba var. pl. fl., which is a beautiful flowering plant for a wall, flowers on the wood of the previous year, and should therefore be pruned hard back so soon as it has finished flowering, to allow it plenty of time to make and mature its new shoots for the following season. The young growths should be left their full length, and not trained in, except such as are required for extension. I instance this plant in particular, as I have often seen all the flowering wood cut away during the autumn or winter. In pruning, all the main branches and such shoots as are necessary to retain should be made secure to the wall; keep a sharp watch for ties that are getting too tight.

General Remarks.—The edging, remaking and repairing of garden paths should be completed so soon as possible. Where mixed border flowers are situated next to lawns, it adds much to the general effect if the border is edged with stones and about a foot of gravel; or the front may be paved. This allows the front line of plants to grow out in an informal manner, adding greatly to the general effect.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

The Orchard House.—Peach and Nectarine trees that were started into growth at the beginning of the year have passed the flowering stage, and if the fruits have set freely the remains of the flowers may be washed off by the syringe. Thinning the fruits and disbudding the shoots should then be done; the removal of gross, fore-right shoots should be carried out over a period until two or three fruits pointing upwards on each shoot remain, and two good growths are left, one at the base, the other at the top to draw up the sap and furnish the tree with bearing wood for another year. All intermediate shoots may be rubbed off in due course, but for some little time close pinching is the safest course, especially where there is a fruit. The application of rich top-dressings to the roots is a very important matter, as it is impossible for pot trees to mature a good crop of fruits without this assistance. The top-dressing should be supplied little and often from the time the fruit sets to its attainment of full size. Feed the roots also with diluted liquid manure when the stoning period is reached. The shoots may be pinched at about the fifth leaf, more or less, according to the size of the trees and the space at command. Daily cultural details include regular and careful watering with tepid water, damping all available spaces and light overhead syringing when the weather is bright and fine. The temperature of the house should not exceed 55° at night, and 65° to 70° by day for the present, with air admitted when the sun is shining. If fermenting material has been used, this should be turned regularly and renovated to ensure a steady bottom-heat, which should not be strong, as gentle warmth will suffice to keep the roots active. As later trees approach this stage, the house should be fumigated moderately on two or three occasions, as neglect of this is sure to end in trouble, especially if Strawberries are grown in the house. So soon as the flowers open, direct syringing should be discontinued, but atmospheric moisture must be maintained, especially on bright days. The temperature through this stage may range from 50° to 55° at night, and 60° to 65° by day or up to 70° when the sun favours liberal ventilation.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Kitchen Garden.—So soon as the ground is in good working order, the earliest crops, such as Jerusalem Artichokes, Onion sets, and Shallots should be planted; while it is advantageous to get these crops planted early, it should not be attempted while the soil is in an unsuitable condition, as ground, if trodden on whilst it is wet will become hard and require to be again broken up with the digging fork. These remarks apply also, and with more force, to the early sowing of seeds. At the first opportunity, however, when conditions are propitious every effort should be made to make the first outside sowings of such vegetables as Peas, Broad Beans, Parsnips, Spinach and Onions.

Fig and Peach Trees.—Where these tender fruits are grown on outside walls, the work of pruning and training the branches should be completed. The flower-buds on Peach trees develop early, and much damage may result if these are too far advanced before the shoots are fastened securely. The older wood should, in both cases, be removed where it can be dispensed with, leaving plenty of young shoots to furnish the vacant spaces. These young shoots should have ample room between them so that, if necessary, the current year's shoots, which should always be selected from near the bases of last year's growths, may be laid in temporarily between them as growth proceeds. Young trees of both kinds are inclined to grow too vigorously at the expense of fruiting, and this must be rectified by root-pruning in autumn in the case of Peach trees, and confining the roots of Fig trees so that their rooting area is much restricted.

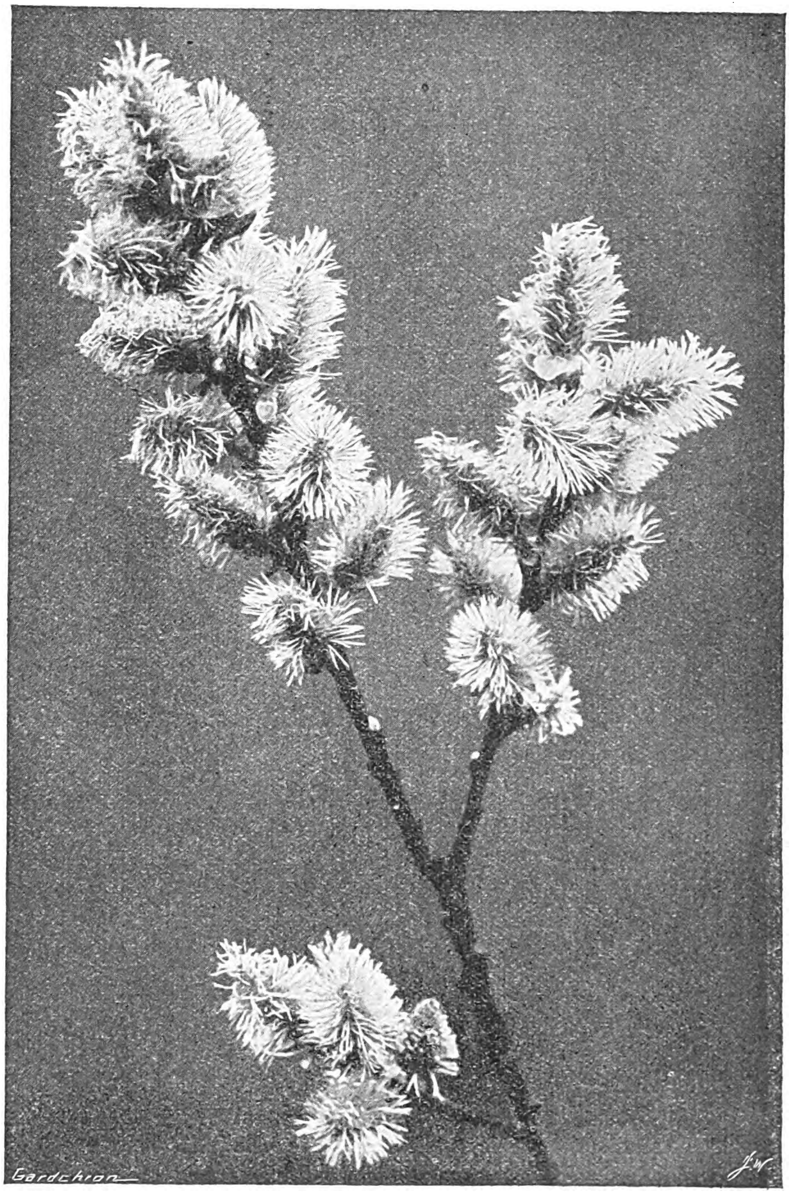


FIG. 86.—SALIX CINEREA VAR. MEDEMII

(see p. 176).

Early-flowering Chrysanthemums.—The propagating of a sufficient number of these plants should be done forthwith. If the cuttings are inserted about three inches apart in boxes filled with a sandy compost, they will not require transplanting before the time arrives, early in May, for transferring them to their flowering quarters. The house or frame in which they are placed should be kept close and shaded from direct sunshine for the first week or two, in order that the cuttings do not wilt, as if once this happens hardening of the tissues sets in, and the rooting process is very much delayed, if not prevented altogether. So soon, however, as it becomes evident that the cuttings are rooted, air should be admitted to the house or frame on all favourable occasions, and the shading removed entirely. Late-flowering Chrysanthemums may also be propagated now, if it is is desired to grow on a number in small pots for obtaining useful plants for house decoration, and on the side stages in the greenhouse. The earlier-rooted plants should be transferred to larger receptacles before they become pot-bound, and grown on under cool conditions. Spray them with an insecticide or fumigate them on the first appearance of insect pests. Admit air whenever the weather is favourable for this to be done, to obtain stocky, sturdy specimens.

BULB GARDEN.

MONTBRETIAS.

Experience has taught me that it is a decided advantage to lift corms of Montbretias in autumn, store them in sand in a frost-proof shed, and replant them in spring, when the ground is in a favourable condition for working. They should be inserted six inches apart and three inches deep, in sufficiently large quantities to form attractive groups when in flower.

The choicer kinds are best grown in three-inch pots in sandy loam, and started in a cold frame, to be planted afterwards at a greater distance apart than the older kinds. There is a large number of varieties of which the Westwick hybrids are some of the best of recent introductions, including the superb Star of the East, which has orange-yellow flowers.

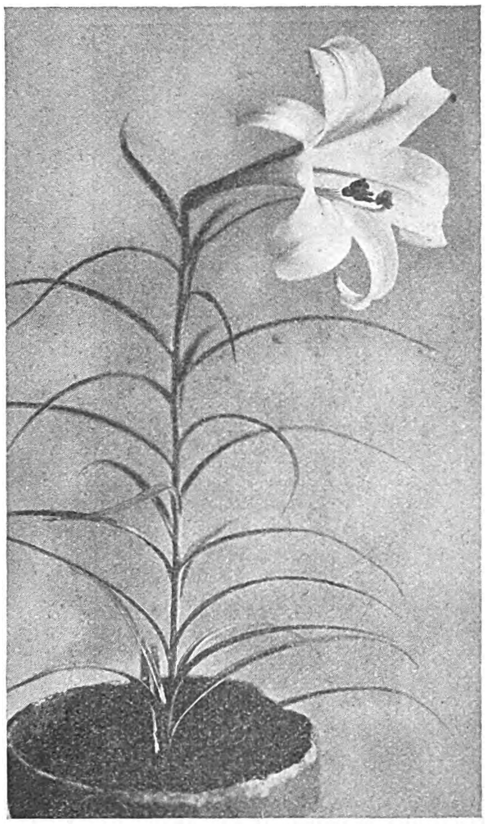


FIG. 87.—LILIUM PHILIPPINENSE FORMOSANUM, FLOWERING TEN MONTHS FROM SEED-SOWING. (see p. 177).

GLADIOLI.

These popular bulbous flowers are excellent subjects for summer bedding, and lend themselves for this purpose in an endless number of ways. Being of upright growth, it is easy to associate them with other plants.

A border or bed devoted to Paeonies may be made bright through the summer and autumn by planting Gladioli in the open spaces; the same practice may be followed with Iris beds. The Gladioli are useful for associating with Carnations in beds or borders. They are also invaluable for adding colour to and filling bare spaces in herbaceous borders. None is so useful for this purpose as the well-known G. brenchleyensis, which produces its spikes of bright scarlet flowers in profusion.

A rich, deep loam of medium texture is the most suitable in which to grow Gladioli, but they will thrive in almost any garden soil. A heavy, retentive soil may be made suitable for them by being well-worked and having plenty of burnt refuse and the remains of a spent hot-bed added. Very light soil should be dug deeply and mixed with a liberal amount of decayed cow manure. If possible, the ground should be dug and manured in the autumn; then, in the spring, it will only be necessary to move the surface soil with a fork preparatory to planting the bulbs.

Early in April is usually considered the best time for planting Gladioli, but if a succession of flowers is desired until late in the autumn, planting may be done at intervals until June.

To obtain spikes for exhibition purposes, Gladioli are best grown in rows made eighteen inches apart on well-prepared beds, allowing twelve inches between the corms in the rows, which should be planted to the depth of three inches. During the growing season a mulching of short manure will promote strong growth, and applications of liquid manure, given after the spikes appear, will greatly assist in the production of fine inflorescences which should be supported by neat stakes as they develop. The practice of lifting the corms in the autumn should be rigidly followed, as this enables the ground to be worked to better advantage. *James A. Paice.*

TREES AND SHRUBS.

SALIX CINEREA VAR. MEDEMII.

Each succeeding year the value and beauty of this Willow as an attractive flowering tree or large shrub appears more marked. Not only is it the earliest of the Willows to attract attention, but the catkins are among the largest and most showy of the genus. This year, in common with most early-flowering subjects, the catkins are two to three weeks later than usual in developing. In most seasons attention is drawn to the trees at the end of January by the developed catkins, but this year we were past the middle of February ere they became attractive. Now, on March 5, the rich yellow stamens are fully developed and very showy.

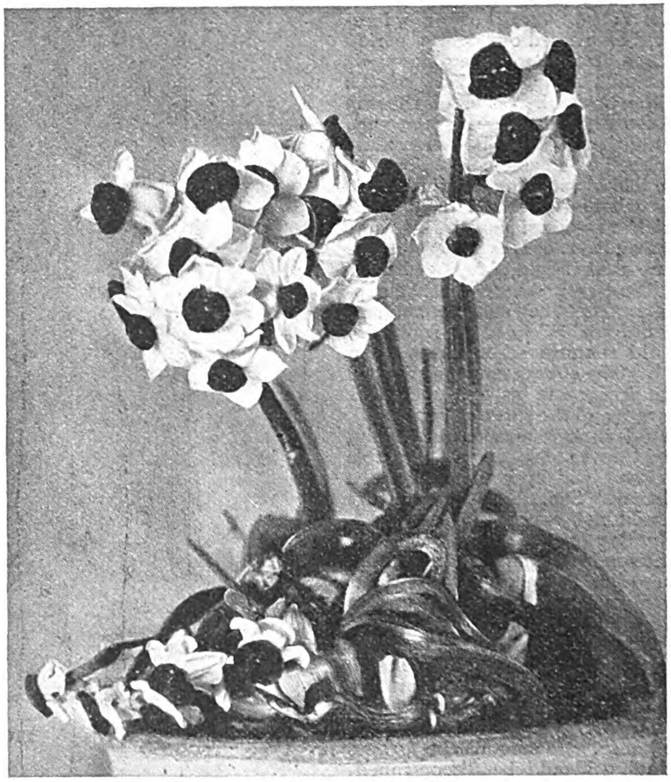


FIG. 88.—CONTORTED NARCISSUS TAZETTA, AS GROWN BY THE CHINESE. (see p. 177).

The great majority of Willows are dioecious, but in S. cinerea var. Medemii (Fig. 86) we have a most interesting exception, as occasionally pistillate and staminate organs of the flower develop on the same catkin. As a garden subject, S. c. Medemii is very distinct from the Grey Willow, S. cinerea, of which it is considered a variety, with its larger leaves and bigger, more attractive catkins. These are up to two inches long and three-quarters-of-an-inch thick.

Trained in a young state to a single lead, the species assumes the character of a small tree, while by pruning, large, shapely bushes develop with twigs freely clothed with catkins in early spring. In common with other Willows, S. c. Medemii is readily propagated by cuttings, one foot or more in length, inserted out-of-doors during November. *A. O.*

FLORISTS' FLOWERS.

OUT-DOOR CHRYSANTHEMUMS.

The hardy, early-flowering varieties of Chrysanthemums are most valuable for providing a display of colour in the garden from early autumn onwards, as well as for furnishing cut blooms for floral decoration indoors. They are easily raised from cuttings, which may be inserted at this time of the year under glass, and they will root very readily in cool conditions. It is preferable to dibble the cuttings in shallow boxes filled with a gritty compost and to re-box the plants before they become drawn. With proper attention, the cuttings will be suitable for setting out in the garden from the end of April onwards. Planting in late April or the beginning of May has its advantages and disadvantages, for whilst it is unlikely that there will be drought at that early season, there may be a risk of frost. However, it is necessary that the roots should grow away freely, and when the plants do this, without a check from drought, it has a great bearing on the earliness of the blooming. The plants should be grown in an open situation and allowed ample space to develop; a distance of eighteen inches to two feet should be allowed between them, according to the strength of the variety.

The out-door Chrysanthemum will flourish in almost any kind of soil, but much the best results are obtained on land that has been well-tilled and manured previously. During the plants' season of active growth, they should be watered liberally in dry weather and the roots fed with stimulants when the flower buds are swelling. When each variety is allowed to assume its natural habit, the plant will usually be not only of well-balanced shape, but produce sprays of bloom the more abundantly ; that is, in comparison with one which has had its point removed. In a general way, however, it will be found that the side branches which arise near the central flower bud will not grow so long as those an inch or two lower down. It is well, therefore, to experiment in this direction, for length of flower stem is important. Not only is this so, but with the centre of the plant removed, the remaining stems will grow up straighter.

The thinning of the shoots should be done so soon as these are large enough to handle, and the secondary growths on the selected shoots may also be removed as they appear, whether the number to be retained on a plant be a dozen, four, or so few as three ; and one central stick, with the stems laced loosely to it is usually sufficient to support the plant.

The following are twelve first-rate varieties which will expand their flowers before the majority are in bloom. Their early-flowering makes them useful for bedding, and their growth rarely exceeds thirty inches in height. Thinned to one flower to each side stem, these varieties would, of course provide flowers of enhanced size, yet this section of Chrysanthemum is best adapted for producing a wealth of spray-like blossoms.

Goacher's Crimson is a variety that has furnished a bronze and a so-called golden form ; all are excellent, but require good cultivation. Polly also requires to be grown in well-prepared ground and there are golden and crimson forms of it. Dick Barnes gives distinct wine-coloured flowers. Mrs. Jack Pearson is of varying shades of bronze-yellow ; this is a variety by itself, inasmuch as the blooms may be cut with capital stems and successional flowers will follow quickly. A deep-coloured form named Mrs. Phil Page is a valuable addition. Normandie is about the best pink as Rio des Blanc is the best white ; but in each case there is room for improvement. Phoenix, with bronzy red blooms, is a remarkably fine spray variety of recent introduction.

Referring to varieties for producing sprays of bloom, the undermentioned sorts follow the above in time of flowering and these, therefore, require some kind of protection from wet, and may be, from frost. The time the flowers open depends considerably on earliness or otherwise of planting, as well as the nature of the ground and the situation. September and early November is the time when they are at their best.

Almirante, a bronzy-red sort, and its variation named Alcalde or Red Almirante, are amongst the most useful of this shade ; Cranford, rich yellow ; Cranford Cream, Framfield White, as well as its creamy-coloured form ; Hollicot Yellow, which is probably the best yellow among the early sorts, has a distinct amber-yellow form in Harvester ; Lichfield Peach, which is popular on account of its delicate colouring, and Mayford White for the superb quality of its blooms. Perle Chatillonaise in a tall variety esteemed for its cream and pink flowers, a rather nice variation being J. Bannister. Pink Profusion is an excellent variety ; the salmon form is a pretty and quite distinct shade. Hollicot Bronze is a good sort with bronze-yellow flowers.

There are large numbers of varieties which will produce big blooms when the growth is thinned and each branch allowed but one flower. This is a very beautiful section of the Chrysanthemum, but the plants need some protection, such as a cool greenhouse or canvas shelter. They include Early Buttercup, yellow, as well as its bronze form ; Cranford Yellow, a very fine sort ; Cranford Pink ; Cranfordia, yellow, also with a bronze sport ; Crimson Circle, a fine red sort ; Elvenham White, Framfield White, and its cream form ; Hollicot Yellow, the best early yellow variety ; Harvester, a flower of amber colour ; Le Pactole, a fine red and bronzy-yellow sort, and Mayford White.

In Mrs. R. Hamilton we have a brilliant yellow ; Pink Delight is distinct in its delicate colouring ; Pink Profusion also is excellent, as is its salmon-coloured form ; R. A. Roots, is a new and choice white variety ; Sanctity also is white ; Hollicot Bronze, bronzy-yellow ; September White, which produces large blooms, and Uxbridge Pink, of which there are bronze and other variations, are also to be recommended.

So far double-flowered kinds have been considered. The single forms apparently lag behind, or may be these do not appeal to me so much. They include Chieftain, a crimson variety ; Doreen Woolman, orange ; Delice, rose-pink ; Firebrand, crimson, with a form of it termed Golden Firebrand. John Woolman, rose-pink colour ; Midnight Sun, bright terra-cotta ; Nathalie, old rose ; Salmonea, salmon-pink shades ; Supreme, yellow ; Shrapnel, orange, and Water Witch, white. *H. Shoesmith, Woking.*

INTERESTING PLANTS AT TOKYO.

I have pleasure in sending you a little information concerning some interesting plants in the Botanic Gardens at Tokyo. Your readers may consider the illustration of Lilium philippinense var. formosanum (Fig. 87) represents a poor specimen, but the plant was only ten months old when it flowered. Seeds were sown on December 15, 1925, and the photograph was taken on September 7, 1926. I have heard of Lilium longiflorum flowering within one year (strictly nine months) from seed sowing, in California ; in my experience this is an easy matter. Moreover, if the stem is cut the next stem appears soon after, and if well treated it is possible to obtain flowers twice in the same year from the same bulb.

My friend, Mr. Sudzuki, Omori, near Tokyo, collected L. philippinense var. formosanum in Formosa some years ago, and as it flowered in his own garden within the year he recommended it to me. The specimen illustrated was in a four-inch pot and one foot high.

The Victoria regia is the most famous tropical aquatic plant in the world, but we have another fine one in Euryaleferox. The popular Japanese name of this is Oni-basn (Oni = Demon ; basn or hasn = Lotus, *i.e.*, Gigantic Lotus) or Ibara-basn (Ibara = Wild Rose, the reference being to the spines). The Euryale has huge, round leaves that sometimes attain 76 inches to 108 inches, but ordinarily, 24 inches to 36 inches. It is the only serious rival to the Victoria regia, but the Euryale does not need to be grown in a tropical house, indeed it rather likes a cold climate, as shown by its development in the north part of Japan and north Korea, the upper part of Ussuri, China and Bengal. The leaf is round, dark green above, spiny and purple beneath. The leaf stalk is also prickly. A full description of E. ferox is given in *Bot. Mag.*, t. 1,447. At Tokyo it is a magnificent sight grown in a pond which has some Gunneras along one side. The flowers are rather small and continue only for three days. The fruits are armed with prickles and contain small, hard, round (50-120) seeds that are toasted and eaten by the Chinese and Japanese. In China they are said to be used in medicine. The seeds germinate after two years ; the first leaf is ovate-oblong, the next sagitate, and then follow the circular leaves. Fig. 89 represents E. ferox in our gardens on September 22, 1926, when the largest leaf was two feet in diameter.

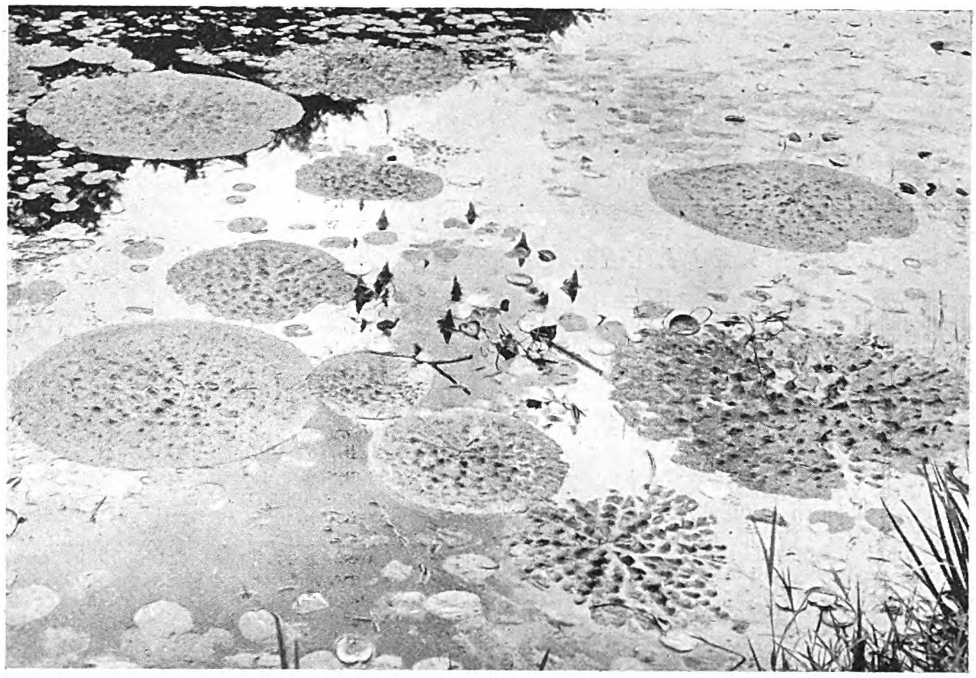


FIG. 89.—EURYALE FEROX IN THE BOTANIC GARDENS, TOKYO.

The Chinese cultivate Narcissi of the Tazetta type very extensively, in bowls or pans of water, but the plants they grow are very different in appearance to those commonly seen, as shown by the illustration in Fig. 88. All the leaves are abnormal, curving and covering the bulb, the flower stem alone growing straight. This curious abnormality is produced by cutting a small portion from the centre of the bulb while the latter is dormant, or by making a small cut down the middle, but in either case the cut must not damage the young bud. If the knife touches any portion of the incipient flower stalk, the latter will be curved in the same way as are the leaves. The bulbs so treated are placed side by side on stones in the pans of water, and after a few weeks the leaves appear and curve downward, as shown. The Chinese call this the " Crab culture " method, and suggest that the curved leaves resemble the claws of a crab and the bulbs the body, while the flowers are crab's eyes on long, projecting stalks. *M. Matsuzaki, Botanic Gardens, Tokyo.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

DISEASES OF LILIES.

IN a paper read at the R.H.S. Conference on Lilies, in London, in 1901,[*] Mr. George Massee referred to forty-five varieties of fungi as known to grow on Lilies in different parts of the world, and was happily able to add the comforting assurance that many of them were rare and many apparently harmless to their hosts. Of fungi destructive to Lilies in Britain, Massee indicated only three, and pointed out that every now and then, when climatic and other conditions are favourable, these fungi manifest themselves in the form of an irrepressible wave of disease. The fungi in question are Botrytis cinerea, Uromyces Erythronii and Rhizopus necans, and of the trio the first is infinitely more prevalent and more destructive than the others; it is the only one, too, which as yet is known to have assumed an epidemic character in Britain.

Uromyces Erythronii is one of a large genus of rust fungi of which mycologists recognise about forty species, and as its name implies, the particular species is primarily associated with the leaves of Erythronium. It is not confined to that genus, however, and according to Massee, attacks the foliage of Allium, Fritillaria, Lilium, Muscari and Scilla. The writer has noticed it also on Calochortus and Trillium. This Uromyces is said to be common on the Continent and in North America, but has not so far hampered growers of Lilies much in this country. The disease appears on the leaves in spring in the form of clusters of yellow pimples, visible to keen-eyed folk, but easily overlooked; later on, these pimples develop into cups, which, when examined through a magnifying glass, are seen to be filled with a powdery, brownish-red rust, really a mass of spores. In the final stage the winter spores appear as tiny brown spots on the decaying leaves, which fall to the ground, where some spores may remain dormant till the spring, and then, obeying the universal influence, may infect young leaves, so that the cycle of life begins anew. The spores are in the crust of the ground, not in the bulb, and it follows that if rusty leaves are gathered before they fall, and burned, or if the infected soil is skimmed off, the fungus is not likely to be disseminated.

Rhizopus necans, originally identified by Massee,[†] is a fungus found in the bulbs of Lilies exported from Japan, and so far as the writer is aware, has not obtained a footing in this country. It takes the form of a brown, cheesy condition at the base of the bulb, and though sometimes so obvious in bulbs taken out of the packing case in which they have come from Yokohama that it cannot be overlooked, may easily pass unnoticed by those not familiar with it. A slight darkening of the flesh about the roots of a bulb is often the only external evidence of the fungus, and then investigation with a penknife may show that a fair exterior covers a foul heart; the blade of the knife may slip in up to the hilt and much of the inside of the bulb can be scooped out as a mass of ripe Medlar-like material, leaving what, in effect, is an empty shell. In such a case the bulb is useless, but where the fungus has not gone so far as to destroy all the basal flesh from which the roots spring, and has not eaten its way into the heart of the bulb, all decayed matter should be cut away and then, the bulb inverted, the basal depression may be filled with a solution of carbolic acid, one part, to forty parts of water. This may be allowed to remain for half-an-hour, and so soon as the bulb is dry, powdered charcoal should be dusted on to the affected parts. Cooke[*] found that by steeping the bulbs for twenty minutes in a one per cent. solution of either corrosive sublimate or salicylic acid, all spores of the fungus reached by the liquid were killed.

The incidence of this fungus seems to depend on the weather at the time the bulbs are harvested in Japanese bulb gardens, and packed for export, and after a wet, cheerless autumn the percentage of diseased bulbs may be comparatively high; on the other hand, in a favourable year, when the bulbs are well ripened, whole cases may come to hand without a trace of the fungus. Until the point has been determined by controlled experiment it will not be possible to say that under certain circumstances, Rhizopus necans may not attack the healthy tissue of established bulbs in British gardens, but experiments the writer made in 1908-1910 in planting sound bulbs in ground previously occupied by diseased bulbs, tends to show that there is considerable doubt about it.

If a bulb of Lilium auratum infected with Rhizopus necans is planted in the ground or in a pot, the fungus gives evidence of its presence by an unmistakable distortion and dwarfing of the stem, noticeable soon after the latter has speared through the ground in spring. The stem may or may not have strength enough to support any leaves, but if it has, they usually wither and fall away before many weeks have elapsed.

The early history of Botrytis cinerea, or Grey Mould, in this country in lost in obscurity, and though the parasitic disease of Lilies (and other plants) called "spot" was not identified as Botrytis till 1888, it is tolerably safe to regard the fungus as of old standing. As *La Maladie de la Toile* it has been known in France for a long time; it seems to have a wide range in Europe and in the United States of America mycologists have been familiar with it for many years. According to Kean,[†] it is the fungus which in the early 'nineties put an end to the thriving trade carried on for some years in bulbs of L. longiflorum, between Bermuda, where they were cultivated as a field crop, and the United States and Great Britain.[‡] The fungus does not seem to have attracted serious attention in connection with Lilies in this country until about 1880, when references to it as "spot" began to find their way into horticultural journals of the time, chiefly in relation to L. candidum; and though mycology was then a comparatively neglected branch of scientific study, and it was the general custom to regard plant diseases as visitations from Providence, and so more or less inevitable, the fungus can hardly have been seriously destructive before then or more attention would have been directed to it. At any rate, it is certain that at that time there were many gardens where Botrytis on Lilies was unknown, or unnoticed, and within his own limited experience, the writer remembers its first appearance in his garden as well as in several other places towards the end of last and the beginning of the present century.

The rapidity with which the disease spread and has continued to spread through the country seems to show that it can scarcely have been epidemic here on Lilies much before the 'eighties, but there can hardly be any truth in the story current about twenty-five years ago that Botrytis cinerea reached this country from the United States as a disease of Lettuce. On the other hand, the grip it has on L. candidum may possibly have originated in diseased bulbs of that species sent here from France, whence large numbers of bulbs have for long been imported. In 1893 the mycologists, Prillieux and Delacroix, who were asked to advise about an epidemic of Botrytis cinerea which ravaged the market gardens in the neighbourhood of Fontainebleau, found the disease most acute on Begonia, Alternanthera, Echeveria and Lettuce. Curiously enough, they reported that in the vineyards of Sauterne as well as in those of the Rhine country, wine-growers regarded Botrytis as having a favourable effect on the ripening of the Grapes and on the quality of the vintage. According to these authors, there was an epidemic of the fungus on Gentian in the Jura in 1888.[*] It is difficult to account for its presence in Bermuda, except on the assumption that it is universal, though it may have been conveyed to the islands in bulbs sent to the islands from Japan. Once launched on the sea of speculation however, there is no end to the theories that may be evolved on the origin of the fungus here, and the fact remains that no one knows whether it came as a disease of Lilies or of other plants. It has a far wider range than is generally supposed, and has been found on other plants, including Gooseberry bushes, green Figs,[†] and vines; even, too, on the Douglas Fir.[‡] In fact, in a serious epidemic it is difficult to say what plants it will not attack.

When Elwes was preparing his *Monograph of the Genus Lilium* in 1879, he had his first experience of the serious ravages of which Botrytis is capable, and described it in the following words: [§]" A fungoid disease, resembling what is called "spot" in Orchids, is often observed to attack the leaves of Japanese Lilies in wet, cold weather, and is, I have no doubt, caused by want of warmth . . . . . Since the preceding was written, we have experienced in England one of the most protracted and severe winters followed by one of the coldest and wettest summers ever known; and the results have been disastrous to Lilies. My own losses have been so great that I have almost despaired of replacing them . . . . Perhaps the most remarkable case was that of a long bed of Californian Lilies, mostly varieties of L. californicum. These had become perfectly established in large clumps, and came up in the spring with unusual strength. After they had grown five or six feet high, and in most cases produced numerous buds, they became covered with blotches of decay, which spread rapidly over the whole plant. Week after week of dull or sunless weather had apparently induced a somewhat similar disease to that which destroyed the Potato crops so generally in 1879, and the result was that they died off either without flowering or with only a few half-opened buds."

Mr. Elwes sent a parcel of these diseased stems to the Rev. M. J. Berkeley, scientific adviser to the R.H.S., and he reported as follows:—[‖]" . . . . Nothing, however, has ever equalled, as regards condition, what we have now before us. The disease is no longer confined to mere spotting, but affects the whole plant, extending even to the bulb which will soon be in as deplorable a state as the plant itself. No Potato stem affected with the Peronospora was ever in a worse state than what we have before us . . . . . No treatment or change of soil seemed to have any beneficial effect."

At that time the fungus, which had not been identified, was known simply as "spot," and, in *The Gardeners' Chronicle* of September 10, 1881, there was printed a letter from the Rev. C. Wolley-Dod, of Malpas Hall, Cheshire, a well-known amateur gardener of the last generation, describing what he called "the worst attack of spot which has ever come under my notice." This attack coincided with a break in the weather, which, "for the last fortnight has been very wet and stormy, with great variations of temperature—high winds, cold nights, now and then hot sun, or thunderstorms." To gardeners, and especially to amateurs, of Lilies, the tale of disaster unfolded by Mr. Wolley-Dod is a pitiable one with which, unhappily, they are all too familiar. "Lilium auratum (he wrote), which has hardly begun to flower out-of-doors, has suffered most; but no species, even the earliest-flowering, has been exempt from the attack . . . . which seems to come suddenly and to attack healthy and unhealthy plants without distinction . . . I cannot find that any kind has entirely escaped."

---

[*] *Jour. Roy. Hort. Soc.*, vol. 26, 1901, p. 372.
[†] *Kew Bull. Misc. Inf.*, 122–123, 1897, p. 87.

[*] *Kew Bull. Misc. Inf.*, 122–123, 1897, p. 87.
[†] *Bot. Gaz.* xv, 8 (1890).
[‡] The enterprise is now in process of resuscitation.

[*] *Comptes Rendus*, 118, p. 744 (1894).
[†] *R.H.S. Journal*, xxvii–xxix, p. 138 (1906).
[‡] *id.*, p. 226.
[§] *Mon. Gen. Lilium* (1880). Introd. p. xi.
[‖] *Gard. Chron.* Aug. 23, 1879.

Mr. Wolley-Dod sent specimens of diseased plants to the R.H.S., and not recognising the disease as Botrytis, Berkeley reported that it was due to a parasitic fungus of the Ovularia genus, to which he gave the new name O. elliptica.

In a later issue of *The Gardeners' Chronicle*,[*] Mr. Wolley-Dod made what at that time was an intelligent prognosis of the way the disease was spread. "The spores of the fungus which cause the disease are either carried up from the soil with the young growth of the stem of the Lily or brought from a distance in the air." Subsequently,[†] Mr. George Wilson, a famous amateur of Lilies of his day, and, incidentally, then owner of Wisley, wrote to *The Gardeners' Chronicle* to the effect that though there was no sign of "spot" on his Lilies on August 12, it reigned supreme only three weeks later.

For some years afterwards there were occasional references in horticultural journals to the disease, and in the issue of *Gard. Chron.* for August 18, 1888, Mr. W. G. Smith suggested that Berkeley's identification of the fungus was wrong and that it should be referred to Peronospora. In the same year, Marshall Ward, then Professor of Botany at Cooper's Hill College, published a brilliant exposition of the life history of the fungus as he found it on L. candidum in his garden at Staines. Ward's interest in the disease had been aroused by the deplorable state of these Madonna Lilies in 1886 and 1888—the latter an especially bad year, for in his own words, "of 258 flowering stems with 1,200 flower buds on them, only ten per cent. were presentable." Ward recognised the fungus as one of the Botrytis genus, but did not feel justified in assigning it to a particular species, and it remained for Massee, who had had the fungus under observation for several years, to recognise it as Botrytis cinerea.[*]

Ward approached the disease from the angle of scientific research, and made no suggestions as to preventive or remedial measures, but Massee proposed both. "Assuming (he wrote) we have a bulb free from Botrytis, it is only fair to suppose that the mycelium of the fungus is present in the soil. To guard against infection, make a hole in the soil three or four times the size of the bulb, fill it with quartz sand in which a dessert-spoonful of sulphur has been mixed, and plant the bulb in the middle of the sand. By adopting this method we practically prevent the formation of sclerotia on the bulb as mycelium cannot pass through sand owing to lack of food . . . . . The surface soil covering bulbs should be removed every autumn and replaced by soil mixed with kainit, which destroys fungus mycelium. For the same reason, manure used for mulching should be mixed with kainit, which practically sterilises it." *A. Grove.*

(*To be concluded.*)

---

[*] Sept. 17, 1881, p. 378.
Id., Oct. 1, 1881; p. 442.

[*] *R.H.S. Jour.*, July 16, 1901, p. 374.

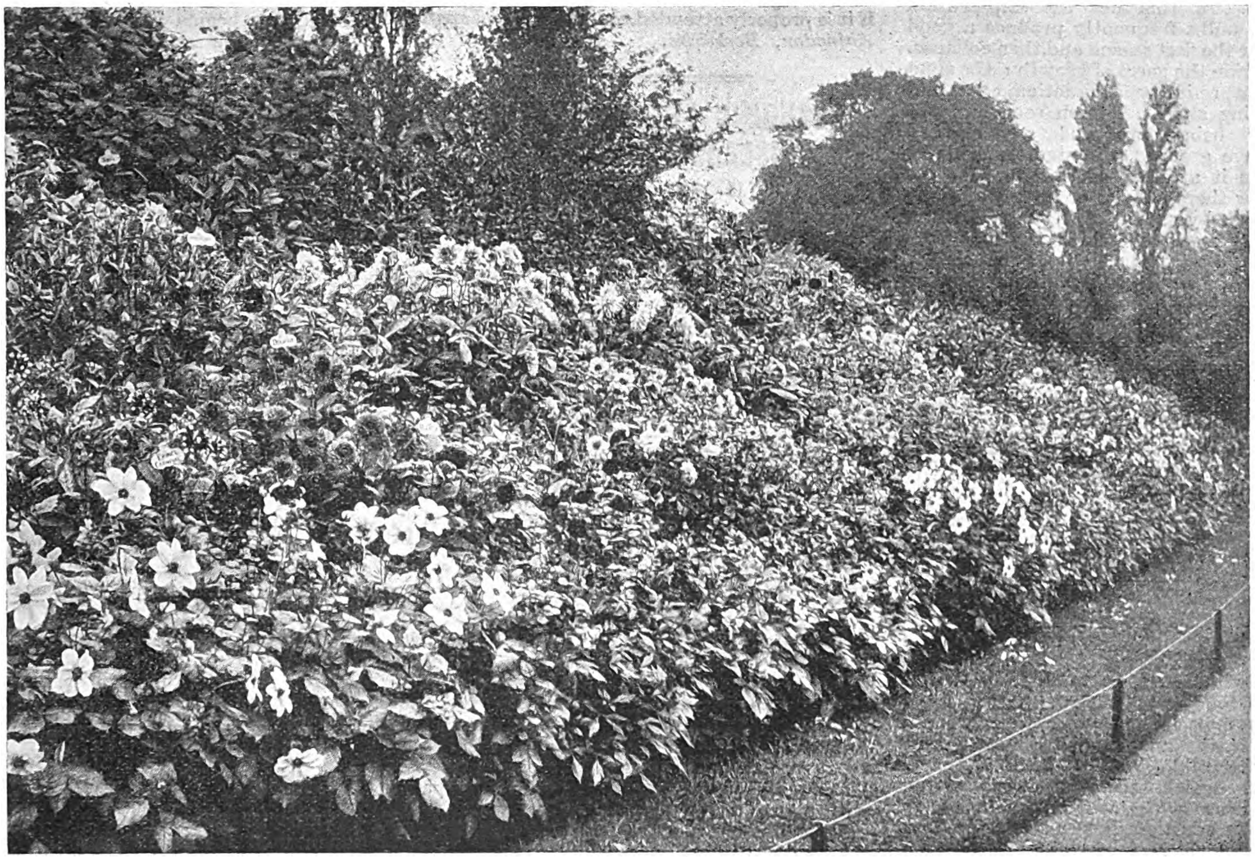


FIG. 90.—A BORDER OF DAHLIAS IN REGENTS PARK.

(see p. 172.)

LILIES.

With the turn of the year the annual consignments of Lilies begin to arrive from Japan, and wholesale buyers and large growers are then busily arranging their season's stocks. Prices average higher than usual, while with regard to the popular Lilium auratum, in particular, there is evidence of a distinct shortage. The reason for this is not far to seek. The astute Japanese growers, anticipating that the coal strike would create glasshouse fuel shortage and consequent short demand, have diverted supplies to other countries more favourably situated. At Messrs. Protheroe and Morris's sale room, on December 30 last, over three hundred thousand Liliums were disposed of at high prices in less than an hour-and-a-half. This gives some indication of the demand in Great Britain for these bulbs. Why do we depend upon Japan for Lilies? British growers, and a very large body of workers engaged in producing flowers for market, apparently depend upon sources of supply entirely outside their control. New Zealand grows some of the finest bulbs in the world, but apart from such distant growing grounds, there does not appear to be any good reason why Great Britain should not supply the bulk of the Lilies sold in the home market, and also add to this a considerable export trade. Already there are indications that this subject is attracting the attention it deserves. Messrs. Wallace and Co., Messrs. Barr and Sons, Mr. Amos Perry and the late Mrs. Backhouse (to mention but a few of the pioneers) have shown the way, and proved that British Lily-growing and hybridisation is both possible and profitable.

The first principle of Lily culture is the recognition of the fact that root-action is fundamentally different from that of other bulbs, such as Narcissi and Tulips. With these latter the roots develop annually from the base of the bulb; consequently such bulbs suffer no harm when they are lifted during their resting period. With Liliums the facts are materially different. They, unlike those already mentioned have not a hard, testaceous skin intended for the purpose of retaining the bulb's natural moisture when the annual roots have died away. The narrow scales of Lily bulbs are arranged loosely, they are fleshy and unprotected, and on exposure to air they rapidly shrivel and loose their vitality. The plain inference is that Lily roots are intended to function continuously and provide a constant supply of moisture throughout the year.

Under the best of circumstances Lilies do not appreciate disturbance; in the case of some species and all old bulbs, moving them is frequently fatal. When, in addition to disturbance, all the roots are sheared off, and the bulbs not only dried up but kept out of the ground for several months, it is scarcely surprising that, lacking roots, the mutilated bulb structures frequently fail to re-establish themselves.

The very existence of stem-roots indicate that the bulbs themselves are not intended by Nature to provide all the nutriment for the superstructure. In this lies the explanation why imported bulbs frequently produce a good flower-spike for the first season and then collapse. The bulbs provide the germ of growth; the stem roots (if present) re-inforce this action, and build up the flowering stem. If such roots are not produced (or being produced are allowed to remain above ground), the stem is liable to collapse before it attains full growth. At the end of the year there is little or no bulb for the following season, by reason of the fact that the perennial basal roots, by which the new bulb should have been produced and nourished, do not exist, having been obligingly sheared off by the Japanese exporter in the interests of future business.

Those who wish to establish imported Lilies in permanent positions (as apart from growers who only desire flowers, or an effect for a single season), would do well to bear the above in mind and arrange their culture accordingly. Lilies dislike manure, but for the most part revel in peat or leaf-mould and decayed vegetable matter. Seedling plants take to such material naturally and establish themselves quickly, but in the case of mature bulbs the first consideration should be the stimulation of new basal roots. The dry bulb is not given a fair chance if it is planted in cold, wet soil. It will, in all probability, throw its energies into the flower stem in a desperate final attempt to reproduce its species, and then expire.

A method which I have found remarkably effective is as follows:—Remove the soil for a depth of two feet and fill with well-trodden, freshly-fallen leaves mixed with grass cuttings and moist vegetable refuse. This forms a mild hot-bed which stimulates root-action while the weather is yet cold enough to deter top growth. In addition, it keeps the situation well-drained, which is important. Cover the leaves with about three inches of fine soil and on this place the bulb. Before planting, the dry bulb should be soaked in water for twelve hours or until the scales have become plump and brittle. This will stimulate the production of roots. It is a good plan to dust the bulb thoroughly with flowers of sulphur while it is still wet. This will effectively check and prevent fungous growth. The bulb, when planted, should be covered with fine, dry soil to the depth of at least twice its own height. Exception to this rule should be made in the case of L. candidum and L. giganteum, which do best with the nose of the bulb only just below the surface. The bulb should be protected from excessive dampness of soil by an upturned box or pot until such time as the stem appears above ground. Until this point the surrounding soil should be kept as dry as possible. In the case of pot plants the bottom-heat principle may be followed with advantage, but as wet soil is to be avoided until growth is visible and overdry conditions are equally to be guarded against, the ideal method is to plunge the pot in a hot-bed in the open. Where a hot-bed is not available, pot up the bulbs and leave them in a cold frame, free from frost, until growth appears; on no account should top growth be stimulated until root-action has commenced.

Young bulbs (the smaller and cheaper grades of a given variety) are more easily established than larger ones, but the first year's flower yield will be correspondingly less. On no account should bulbs which are soft or of questionable soundness at the base be planted. Such bulbs will only bring and spread disease.

Reverting to the question of British cultivation from a commercial standpoint, there are many localities eminently suited for the purpose. Some degree of shelter and equable climatic conditions, such as are to be found in Dorset, Devon and Cornwall, Southern Ireland and parts of Wales and Scotland, are ideal. In general, the principle to be followed is raising from seed in pots or pans in the open, transferring the seedlings without a check to prepared positions at the end of the second year, and selling the crop at the end of the third or fourth year, in the case of such kinds as L. regale, L. auratum, L. speciosum, etc. L. regale is a Lily with a wide future before it; it may be raised to flowering size from seed within two years. This Lily frequently produces abundant flowers in the open border during its second year, if it is properly attended to. *Herbert G. Longford, Abingdon, Berkshire.*

ECONOMIC PLANTS OF THE BAY ISLANDS (HONDURAS).

(Continued from p. 133).

VEGETABLES.

SWEET POTATO.

Two varieties are found in the Bay Islands, one bearing white or yellow, and the other one purplish tubers. The former has round or cordate leaves, which are simple, while those of the latter are divided into three leaflets. The purple tubers are those preferred locally.

The Sweet Potato is propagated by means of cuttings from the stem, about a foot in length, which are buried half their length in the ground. about two feet apart. In about four months the tubers will have matured. After the latter have been dug up, the stems and roots are covered, and in about two months a new crop comes to maturity. In rich, moist soil this process may be repeated several times.

SQUASH.

The Ayote, Pumpkin or Squash (Cucurbita Pepo) is represented by many varieties, differing in size, shape and taste. The English speaking inhabitants of the Bay Islands do not cultivate this plant so extensively as do the Ladinos. When tender, the Pumpkin is eaten as a vegetable and generally served in soups. When matured it is generally baked and prepared with sugar or syrup. The native varieties do not reach such large size as those cultivated in the United States.

TOMATO.

The Tomato or Tomate (Lycopersicum esculentum), is generally used locally to flavour stews. It prospers readily without any care and may occasionally be found growing wild in the neighbourhood of houses, but the fruits do not reach a great size. Many varieties are grown, differing in size, shape, colour and flavour.

Other vegetables, cultivated to a very limited extent in the Bay Islands, are the following: Watermelons, Muskmelons, Asparagus, Egg-plants (locally Plant Eggs), Potatos, Cabbage, Lettuce, Beet, Onion, Garlic, etc. Owing to the moistness of the atmosphere these products are, however, inferior in size and quality to those raised in more northerly latitudes, and the bulk of these foodstuffs consumed in the Bay Islands are imported from the United States. Fairly good results can be obtained by importing fresh seeds every year as all these plants soon degenerate in the tropical lowlands.

COCONUT PALM.

The Coco Palm or Cocotero (Cocos nucifera) is a particularly useful Palm found all along the coasts of tropical America, where it has probably been introduced by means of ocean currents. We have no proof of its existence in the New World in pre-Columbian times, and the Indians of Central America have no native name for it. In the Bay Islands Coconuts are the chief source of income, the annual production exceeding ten million nuts. A dense fringe of Coco Palms extends round all the islands and they prosper even on the limestone or "iron-bound" shore, while all the cays are covered with them. They are also cultivated extensively in the interior of the islands, but they thrive best along the sea shore where the influence of the sea breeze is much greater. The Coconut groves are known as Cocales among the Ladinos, and by the names Coconut Walks or Coconut Gardens by the English-speaking natives. Plantains and Bananas are often raised between the Coco Palms, or the whole grove is planted in grass and used as a pasture. Cattle must however, be kept away from the young trees as they will bite off the tender leaves and kill them.

During the first years of the twentieth century a disease appeared among the Coco Palms, particularly in Utilla, and to some extent in Ruatan, while, so far, Bonacca Island has practically been spared this trouble. The bud of the tree begins to rot and the upper leaves become yellow and drop off; at this stage the Coconut beetle or rhinoceros beetle can be found in the heart of the Palm. This is a large, black beetle belonging to the Scarabaeidae. It is not known whether this insect causes the disease or whether it lays its eggs only in the bud of such trees as are already diseased. In Utilla, I saw, in 1921, hundreds of trees killed by this trouble, which a few years previously were in full bearing. Rats will occasionally ascend the Palms and spoil the Nuts by boring a hole in them.

None of the by-products of this useful plant are exported from the Bay Islands. No use is made of the wood of the old trees, which takes a good polish and is commercially known as Porcupine Wood. The husk of the nut is not used locally for any purpose, but from the Pacific Islands the fibre or coir is exported to Europe and to the United States and made into cordage, brushes, brooms, matting and ropes. The distillation of arrack from the sap of the Palm, which is practised in the East Indies, is also entirely unknown here. A fermented beverage is sometimes made by the Ladinos from the sap in the same manner as they obtain Coyol and Corozo wine. In the homes of the poorer negroes the shell of the nut is sometimes used as a drinking vessel or for storing different small objects.

Formerly, Coconuts were also exported to England via Belize (British Honduras) in the shape of copra, which is the sun-dried kernel. In England the oil was pressed out and made into soap, candles, Coconut butter, etc. This soap has the advantage of producing lather in salt water, which is not the case with ordinary soap. Coconut milk is locally much used for boiling vegetables, Rice, etc., and the water of young nuts is a very agreeable, refreshing beverage. The oil extracted from the nuts is extensively used in the native kitchens, where it replaces lard. It is also sometimes made use of for lighting purposes; boiling the grated kernel in water and skimming the oil as it appears on the top. It is not exported, but small quantities are sold on the mainland of Honduras, where it realises from 25 to 37½ cents. per pint bottle. About three nuts are required to produce a pint of oil. The Ladinos do not care much for the use of Coconuts in cookery except in the making of dulces or sweetmeats.

For the gathering of the Coconuts the Bay Islanders make use of a sort of pack basket, called basquito, which is made from a small Palm growing in the Cayman Islands, whence they obtain the material. The nuts are collected into heaps, and then the thick, heavy husk is removed with the aid of a pointed, hard-wood stick which is driven firmly into the ground with the point upwards. Grasping the Coconut in both hands the husk is then pierced and easily removed, and by this method an experienced person will husk over one thousand nuts in a day. The nuts are then stored in so-called Coconut-houses until ready for shipment. These houses are built on hard-wood posts out in the sea in order to keep the rats away, and at the same time facilitate transportation to the vessel by means of large canoes or lighters. Generally, the nuts are taken in local schooners to Key West or Tampa (Florida), or in Banana steamers to New Orleans, New York or Boston. Around 1918 and 1919, Coconuts yielded locally as much as $62.50 per thousand, but at the time of my last visit there (1921) the price had fallen to $10.00. This barely paid for the expenses involved in the gathering, husking and storing of the nuts, and consequently a great depression reigned in the Bay Islands at the time.

Cohune Palm.

The Cohune or Menaca Palm—Corozo in Spanish—(Attalea Cohune), is found in all the islands, especially in fertile areas but, gradually, as more land is being brought under cultivation, the Cohune Palm is disappearing. It is found from sea-level to an altitude of about 600 feet (180m.). Entire forests of these trees exist on the Atlantic coast of Central America, from Black River (Republic of Honduras) to Yucatan.

The long, pinnate leaves are the most common thatching material for the houses of the poorer natives in this part of Central America; if properly made, such a roof will last for five years without repairing. A Cohune Palm produces annually from one to four bunches of fruits, each containing several hundred nuts of the shape of a small fowl's egg. The fruit consists of a very hard shell which surrounds an oily kernel. The oil is occasionally extracted and used as a substitute for Coconut oil. On account of the extremely hard shell it is very difficult to split the nut. In the green state it contains an agreeable, refreshing liquid which is somewhat purging. During the war the shell was exported to the United States to be used in the manufacture of gas masks.

From the sap of this tree a sort of wine is obtained which is, however, not as highly esteemed as that from the Coyol Palm. For this purpose the tree is cut down and a small oblong hole is made at the bud just below the crown of leaves. The sap of the tree will then secrete in this hollow which, within two days, will be filled with a fermented, slightly yellowish liquid, the so-called wine, which may become strong and very intoxicating. This fermented juice will be collected once, or even twice, a day, and each time the hollow is made slightly larger. This business may be carried on for two to four weeks, during which time large specimens will have yielded from ten to fifteen, and even more, gallons of Vino de Corozo. The natives of the Bay Islands do not seem to know how to make this wine, but the Ladinos are very expert at it. The hole wherein the juice collects must be well covered in order to keep insects out; the black rhinoceros beetle particularly likes to feed on the bud of the tree. *Edouard Conzemius, 33, Boulevard des Batignolles, Paris.*

(*To be continued.*)

ALPINE GARDEN.

SAXIFRAGA BURSERIANA TRIDENTINA.

The seedlings illustrated (Fig. 91) are from Saxifraga Burseriana tridentina, which is a native of the Trentino Alps. A few years ago we raised a batch of seedlings from this variety and in no case were there two alike; either the foliage was distinct, or the shape, size or form of the flowers showed variation. The plant on the left had flower stems three inches high, and the one on the right, two inches; this last plant also had the largest flowers. Seedlings of S. B. tridentina produce large flowers on both tall and short plants, and the foliage shows similar diversity. Small Orchid pans suit these floriferous specimens for frame and cold-house culture, as free drainage is essential for these heavily encrusted types, and ensures free flowering. The size of the pan on the right is three inches; on the left, four inches.

The foliage in each case is large and stiff, the tips of each leaf being almost spiny, while the rosettes are much more silvery than in S. Burseriana. It is frequently stated that S. B. tridentina is the parent of the large types of S. Burseriana, such as S. B. Gloria, and our seedlings would seem to verify this statement. *Mark Mills.*

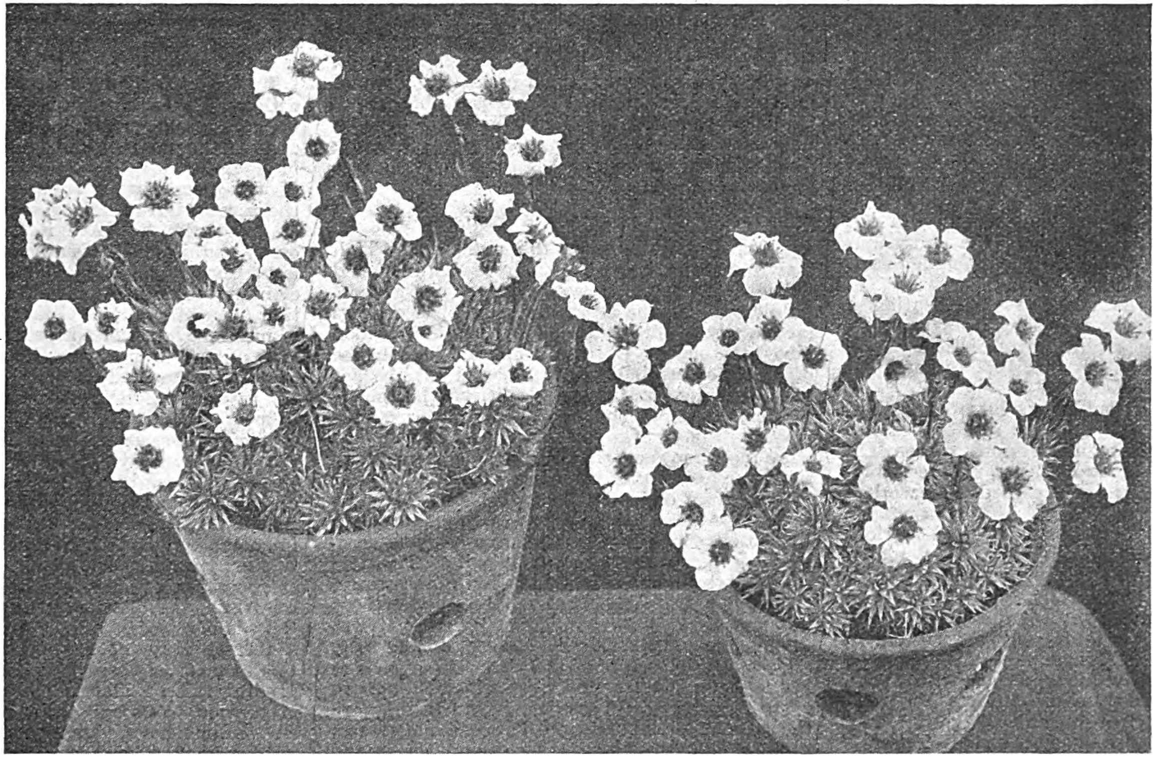


FIG. 91.—SEEDLINGS OF SAXIFRAGA BURSERIANA TRIDENTINA.

ANDROSACE SARMENTOSA.

Androsaces are general favourites with growers of rock plants, and it is much to be regretted that considerable numbers of the species are difficult to cultivate.

One of the most accommodating is Androsace sarmentosa, a species which has been in cultivation for a long time. It is a most delightful little plant and forms masses of neat foliage, which at first is woolly in appearance, but afterwards becomes of a pleasing green. The plant sends out runners, which root as they extend, and so assist in increasing the size of the original specimen to a remarkable degree. The hairy flower stems rise to a height of about six inches and bear pretty pink flowers, resembling those of Verbenas. This Androsace is not difficult in a sunny, sandy place in the rock garden or moraine, where it will flourish and give increasing pleasure as it extends. Propagation may be effected by taking off the rooted runners, which may also be pegged down if desired. There are several varieties, but as these are not generally offered for sale, with the exception of the fine variety Chumbyi, they may be dismissed with a brief mention. The others include A. s. yunnanensis, a very small form from Yunnan, and A. s. Watkinsii, another miniature variety.

A. sarmentosa and its varieties range in their native distribution from the Himalayas into China. Plants may be purchased in pots and planted out at any time, or, if desired, they may be raised from seeds, but seed-raising should not be attempted unless glass is available, as the seeds are fine, and the young plants small.

PHYTEUMA ORBICULARE.

Phyteuma orbiculare is not so choice as P. comosum or a few other Rampions, but it is easy to cultivate, will grow almost anywhere in the rock garden, and is suitable for the front of the herbaceous border. It is not a rare plant, but vastly more attractive and interesting than many subjects commonly grown, while the success and ease with which it may be cultivated is a great asset.

This Phyteuma may be raised from seeds, and large plants may be divided with safety in autumn or spring. It is said to be a lime-lover but, in my experience, does not like this material in the soil, and will grow well in light, sandy loam. Its height, according to some, is six inches, but others record it as a foot high; with me it has been always about a foot in height. The plant forms a low tuft of foliage, and from this arise bare stems carrying balls of blue flowers of a deep tone. I suggest this plant as suitable for the border or average rock garden. *S. Arnott.*

NOTICES OF BOOKS.

A Year in My Flower Garden.*

There be, it has been said, books of three sorts—books to be purchased, books to be read, and books to be read and kept. That being so, the present reviewer, with a long and varied experience of gardening and its literature, confesses to an inability to classify *A Year in My Flower Garden.*

It is an ambitious octavo volume of over two hundred pages, and its author's aim has been to "give cultural hints, month by month, or period by period, as the case may be, so that the amateur gardener will have no difficulty in caring for his plants throughout the whole year, and carrying them on to adorn the garden once again when the days begin to lengthen and the bursting bud assures us that spring is coming." A worthy aim, in truth, but its successful end demands experience, and a practical knowledge of the many plants and their requirements.

Early in the book the discerning reader, and all really keen amateur gardeners are discerning, will experience doubt as to the qualifications and ability of the mentor, and such information as that "Arbutus unedo, Choisya ternata, Erica, Kalmia latifolia, Olearia Haastii, Pernettya mucronata and Yucca" are non-flowering evergreens, will bid him pause, and undoubtedly disagree. Nor will the knowledgeable amateur agree that "Soot, crushed bones, native guano, wood-ashes and poultry manure" are classed as chemical manures.

If, as is perhaps unlikely, the amateur delves further, he will be entertained to find Virginia creeper and Ivy included with subjects requiring "special" culture. If, again, he has already grown Violets in frames, he certainly will not follow the advice given among the operations for the first half of December, to water the plants liberally, "even in cold weather."

Such instances as the above, indicating a deplorable lack of even an elementary acquaintance of gardening, might be multiplied. Such drawings as those on pages 9, 105, 159 and 169 likewise betray the author.

The printers and publishers have done their part of the book well, but the author was not happy in his choice of illustrations. From the title of the book one would, not unreasonably, expect to see pictures of the garden as worked or controlled by the author. But it is not so. The illustrations are of sundry and various types of garden, but few, if any, are calculated to inspire the reader to copy or adapt for his own enjoyment. Generally, their captions are their better part, though not always, and at times they are not precisely descriptive of the illustration. Facing page 112 there is a travesty of a hardy flower border, with a raw, rustic-work erection in the middle distance, entitled, "The kitchen garden may be rendered beautiful if the borders be planted with flowers." I am at one with the sentiment, but abhor the representation. A small clump of Lilium candidum flowering at the foot of each widely-spaced pergola pillar, in another illustration, scarcely suggests "growing in profusion." *A. C. B.*

Gardens for Town and Suburb.†

As its title indicates, this is a book intended for the delectation of the town dweller, and deals with the quite small garden.

While Miss Solly informs the reader, in her preface, that "It is not a handy guide to horticulture guaranteed to lead the novice by the hand without slip or falter, through every rite of the garden calendar," she has interspersed her pleasantly discursive book with useful hints and suggestions.

The reading matter treats mostly with garden design and making. There are many excellently reproduced half-tone illustrations of existing gardens, but they are mostly architects' gardens, and, as such, are composed of expensive materials and the living, growing plants play a very minor part in the schemes. The frontispiece is a coloured view of the sunken garden at Kennington Palace, and this is not so happy—the greens of the formal hedge, grass and plant foliage are overcast with a sickly yellow.

Considerable care has evidently been expended on the lists of trees, shrubs and plants recommended, which well show what a great and pleasant variety may be grown within the confines of most suburban areas, and even in the towns themselves.

We should scarcely have chosen the dead black linen covers with yellow paper labels for the book, but we have nothing but praise for the quality of the paper and type.

LEGAL NUISANCES.

The Law of Nuisance is not a subject which on first consideration would appear to be of vital importance to the gardener. He does not "make great noises to the annoyance of his neighbours," nor does he generally allow his chimney to emit poisonous and noxious fumes to the danger of the health of the district, nevertheless the subject of nuisances is of vital importance to all gardeners, for a man may create a nuisance by his manure heap, for which the law will give his neighbours certain remedies, or his trees may constitute a certain form of nuisance for which legal redress is obtainable, while on the other hand, he himself may be able to obtain legal aid to prevent a neighbouring factory from damaging his crops with fumes from their chimney.

Nuisances Generally.

Private nuisances, for the redress of which a civil action can be taken, and as distinguished from those nuisances which effect the general public, and for the redress of which proceedings are usually taken in the Police Court, are divided into two classes (i) the wrongful disturbance of rights connected with land, and (ii) the act of wrongfully causing or permitting the escape of deleterious things on to another person's property (*e.g.*, fumes, smells, smoke). The mere fact, however, that such things are allowed to escape does not of itself give rise to an action; in order that a right of action may lie the nuisance must be such that the ordinary man could not be expected to tolerate it, or else the complaining party must show that it has caused some loss to him, for no man is bound to prevent the escape from his land of things which do no harm.

Thus no action will lie against a man who allows the branches of his trees to overhang his neighbour's premises, or their roots to grow under his neighbour's soil unless they are the cause of actual damage—he should, of course, protect himself by cutting back the wood which projects over the boundary, and he may do this whether they are doing any damage or not. The damage may, of course, either be physical injury to a man's premises, when it can be gauged in pounds, shillings and pence, or it may be some interference with the beneficial use of the property, as where it interferes with the comfort of the persons who occupy it.

Having dealt with the subject of nuisances in general, it is interesting to note some of the various forms of nuisance for which the Law Courts have from time to time given redress

Manure Heaps.

In this instance we have a case in point: The plaintiff in the case occupied a house adjoining a market garden, and suffered physical inconvenience from the smell and from flies bred in a large heap of manure. The district was one where market gardening was carried on, although the particular manure heap was larger than might have been expected in the locality. The Court held that the manure heap amounted to a nuisance at law, since it was a serious inconvenience and interference with the comfort of the occupiers of the house adjoining the market garden, according to the notions prevalent among reasonable English men and women.

From this it will be seen that the locality bears some weight in deciding whether a legal nuisance exists or not, for a man who goes and lives in a district where gardening and agriculture are carried on, cannot complain of the ordinary use of manure or the land; in addition the degree of the nuisance must also be considered, for if it is only such that ordinary men living in that locality are content to bear with, a fastidious person cannot contend that it materially interferes with the ordinary comfort of human existence.

Trees.

I have stated that where a tree growing on one man's property overhangs on to that of another, an action for nuisance can only be maintained if some damage is being done. The branch in question may be continually breaking a glasshouse roof, or causing some other damage to the occupier, if this is so then he can bring an action against the owner for the damage done. He is, however, in addition, entitled to cut off any branches which overhang his property, and as regards this latter remedy he can do this whether they are damaging his premises or not, so long as he only cuts off those which are actually over his land and does no more damage to the tree than is necessary to carry out his purpose. It should also be remembered that the wood belongs to the owner of the tree and not to the person who has cut it.

Smoke and Fumes.

In the case of smoke and fumes the action will usually be brought by—and not against—the gardener, against a factory owner for damage done by the fumes to his fruit trees and crops; in such a case if the reasonable enjoyment of the property is substantially affected by the fumes, the owner or occupier is entitled to an injunction to have it stopped. In a case on this subject, the occupier of property adjoining a Corporation's gas works brought an action claiming an injunction restraining the Corporation from carrying on their works so as to cause a nuisance to his property. It was alleged that fumes and smoke from the works were carried by the wind for a distance of one hundred to two hundred yards over the plaintiff's property and had injuriously affected his trees adjoining the gas works to such an extent that the tops were dying, while in some cases the trees were dead. The Court held that the occupier of the land was entitled to the injunction asked for, since the fumes were discharged in such a way as to be a nuisance causing injury to the plaintiff's property.

There are, of course, other forms of nuisance affecting the gardener—the obstruction of light is one which I have already dealt with in a former issue of *The Gardeners' Chronicle*—but to most of these it is possible to apply the general rule: that if some deleterious thing is allowed to escape from one man's premises on to another's, having an injurious effect on the comfort or enjoyment of those premises, for ordinary purposes as judged by the standard of ordinary people, then a nuisance for which legal redress can be obtained has been committed. *Harold Sharman.*

VEGETABLE GARDEN.

TREE ONIONS.

This type of Onion (Allium Cepa proliferum) is not frequently met with in English gardens. Recently, while in Compton, West Sussex, I met a man who found a clump of these plants in a corner of his kitchen garden, adjoining premises which he took over some two years ago. He did not know what they were, and took them for some weed. He therefore started digging them up to get rid of them, and threw the majority away, but they still kept appearing much as Jerusalem Artichokes do in land where they have grown. I was at first rather sceptical as to the possibility of these plants being really Tree Onions, but so exactly did his description of their habits of growth agree with those of Allium Cepa proliferum that I asked him to see if, perchance, there were any bulbs left. He kindly did so, and much to my joy, succeeded in finding a few young plants. When I saw them, shortly after Christmas, they appeared to be much like sturdy specimens of autumn-sown Tripoli Onions. By next summer they should, if left alone and properly cultivated, have attained to their normal height of from two feet to three feet, with good, stout stems bearing bulbs which, when fully grown, are valuable for pickling purposes. The stems should be supported by stakes, and the stem bulbs, when ripe, stored and kept in a dry place until they are required for use.

---

* *A Year in My Flower Garden*, by E. T. Brown. Published by Messrs. Chapman and Hall, London. 7/6 net.

† *Gardens for Town and Suburb*, by V. N. Solly. Published by Messrs. Ernest Benn, Ltd., London. 15/- net.

It was in a small cottage garden that I discovered these plants, but it is in just such places that interesting discoveries are often made. I tried to impress upon the owner the importance of sacrificing this small corner of his garden in order to preserve any remaining bulbs still in the ground.

I should esteem it a favour if any other readers who happen to be acquainted with A. C. proliferum, or who may have seen it growing in English gardens, would kindly give some further information as to the real utility of this vegetable for culinary purposes, and whether they recommend its culture in English gardens; also what they consider a fair average number of edible stem Onions per plant. I am aware that mature root bulbs should be planted one inch deep, in rows twelve inches apart each way, about the end of March. I know also that root bulbs are obtained from bulbs borne on the tops of the stems, by planting the latter much about the same season, one inch deep and four inches apart, in rows made eight inches asunder, to grow and develop beneath the ground into strong bulbs, to be used as parent root-bulbs the following year. I have not yet succeeded in finding any seedsman or nurseryman who stocks and sells Tree Onion bulbs. *Captain E. A. Saunders, Havant, Hampshire.*

PUBLIC PARKS AND GARDENS.

Carshalton Urban District Council has made application to borrow £2,140 for laying out the Stanley Park Pleasure Ground.

Cardiff Town Council proposes to lay out land on the north side of Maindy Pool, Gabalfa, as a recreation ground.

Folkestone Town Council is negotiating for the acquisition of land for a recreation ground at Morehall.

The Urban District Council of Orrell has received sanction to borrow £900 for the purchase and fencing of land at Bell Lane for a recreation ground.

Salford Town Council has made application for sanction to borrow £3,000 for laying-out the Ordsall recreation ground as a children's playground.

Walmer Urban District Council has received a gift of £1,000 towards the purchase of the site owned by the Transvaal and Rhodesian Estates, Ltd., required for a recreation ground. The purchase price will be £2,000.

Southend Borough Council propose to institute a separate department for the public parks and open spaces of the borough. A special committee which has been appointed for the reorganisation of the Borough Surveyor's Department, recommends that "a Park Superintendent be appointed who will be required to take charge of, maintain and control the Corporation's parks and open spaces, and to report direct to the Entertainments and Parks Committee upon matters under his control." The special committee has also recommended that Mr. Arthur Keeling, the present head gardener, be appointed to the position.

Addressing a meeting in the Scottish Liberal Club, Edinburgh, on Monday, February 7, Mr. John J. Jeffrey, Superintendent of Parks and Gardens, said the net expenditure in the department last year was £40,000, and that the maintenance of sports facilities was now on an economic basis. The Corporation maintained five golf courses, thirty-two public bowling greens, seventy-four tennis courts and ninety-two Association football pitches. With regard to Princess Street Gardens, the Parks Department tried to maintain a standard of efficiency worthy of the dignity and beauty of the street. To achieve this they endeavoured to keep in touch with the changing fashions of gardening. Most of their plant-raising was done at Inverleith Park, where the glasshouses were taxed to their utmost capacity at all seasons of the year.

At a public enquiry recently held by the Ministry of Health at Lewisham Town Hall, on the subject of the local town planning scheme of the London County Council, proposals were made for the substantial enlargement of the public open spaces in the boroughs of Lewisham, Greenwich and Woolwich, and for the retention as open spaces of certain privately owned sports grounds. Between thirty and forty acres of ground between the Downham Estate and Bromley were to be laid out as playing fields for the L.C.C. scholars and for recreation grounds and garden plots for the Downham tenants.

FOREIGN CORRESPONDENCE.

LEUCADENDRON ARGENTEUM.

I know of only a few sub-tropical trees or shrubs that are as capricious and difficult to grow as Leucadendron argenteum, the Silver Tree or Witteboom of the Cape. Since its discovery it has always been admired for its large, lanceolate, pointed leaves, covered on both sides with shiny, silvery-white, adpressed hairs, that glisten in the light and render the tree or shrub visible at a great distance. It grows on the slopes of the Lionshead and other places in the near vicinity of Cape Town and somewhat to the east. As a garden plant it has been known for a long time, as seeds have been introduced frequently and may be obtained from seedsmen at any time. They are rather large, about the size of a Pea seed, and germinate freely.

There is no difficulty whatsoever in germinating them, and they soon develop nice seedlings. If these are never allowed to become too dry or too wet, they will continue to grow, and if the soil suits them they will remain strong and healthy.

Leucadendron argenteum is calcifugal; it likes a light sandy and peaty soil, like most of the Proteaceae and the Heaths.

It should be a fine plant for southern gardens in the open, and it should succeed in South-western Ireland and similar favoured places of the United Kingdom. It is sometimes seen on the Mediterranean shores, but on account of the calcareous soil and the difficulty in watering, it is a rare plant, and will always remain so.

The trees soon assume a conical shape and send out their branches in whorls, much in the way as young Fir trees. We once had in Italy a beautiful specimen, about five metres high. It was planted before my time in a large hole filled with "Terra di brugo," which is, however, not quite the same as our peat. It comes from the Italian lakes, and is used all over Italy for such-like plants, and answers the purpose. Generally it does not contain a grain of sand, and this material has to be added. Our plant grew exceedingly well at the foot of a large slope, and was shaded in the afternoon by large Cypress trees. I watched the soil carefully to see that it did not become very dry. This tree, like all Proteaceous plants, usually dies if it is given stimulants, and our tree was killed by an under-gardener, who gave it a large amount of liquid manure. I told him that the tree would be dead within twenty-four hours which he would not believe, but despite a liberal dose of clean water, the Leucadendron immediately began to fade, and rapidly died away as if killed by poison.

Since then every effort to replace the tree has been unsuccessful. We grew seedlings in quantities in small pots, and planted them in various places with all sorts of precautions, and also sowed seeds directly in the soil, as seedlings dislike being transplanted, but we never were successful in getting another good specimen to replace the one we lost. *Alwin Berger, Stuttgart, Germany.*

HOME CORRESPONDENCE.

Coreopsis auriculata var. superba.—As a border subject, this Coreopsis is a plant of more than usual merit. From neat bushes flowers of a rich golden-yellow are freely produced, with a crimson blotch at the base of each petal, thus forming a central coloured disc. It appears to be a true perennial and attains a height of two-and-a-half to three feet. For cut flower and decorative work it is excellent, and should also be suitable for marketing purposes. Propagation is best effected by division in March, or from cuttings inserted in sandy soil in a shady place during the summer months. *S. R. D.*

Black Currant Bud Mite.—Dealing with the Black Currant Bud Mite is not quite such a simple matter as the *Gard. Chron.* leader (p. 107) would seem to indicate. You may remember I was the first to publish and recommend the lime-sulphur treatment, which gave us first-rate results. That was some twenty years ago. Then came two or three seasons successively when, for weeks after the time for spraying arrived, it either rained like the deluge, or blew a howling gale, and spraying was absolutely impossible. Even with a power outfit, spraying takes time, and the problem is what to do when the weather is against one. *Chas. E. Pearson, Lowdham.*

Deep Trenching.—I fully agree with Mr. W. Parker in his remarks on p. 151. Two cases in my experience go far to show how disastrous deep trenching can be without attention to manuring. In 1912, at Hindhead, I trenched some old Asparagus beds three feet deep for a crop of Sweet Peas. As the beds were some ten years old and had been well looked after, I considered no manure was required. The work was completed before Christmas, and in February a light dressing of basic slag and kainit was forked into the soil. The Sweet Peas were autumn-sown and fairly strong at the time of planting. They were never quite happy; a little streak made its appearance in early May, and the crop was a comparative failure. The following year I decided to break up a piece of virgin common land, the soil here being white sand under the natural heather peat, with an incongenial subsoil of hard, brown sand. The ground was trenched four feet deep, and as the work of digging proceeded, each layer of soil had a fair amount of well-rotted manure forked into it, and received an occasional dressing of bone-meal. When finished, the ground received a liberal dressing of basic slag and kainit in March, and a further dressing of bone-meal, soot and lime was forked into it. The growth of Sweet Peas on this land was marvellous. I exhibited twice that season and secured first prize each time. Deep trenching combined with systematic feeding gives excellent results, but to merely trench the ground and to bring the subsoil to the surface can be very disastrous, as a later experience I had in the same district showed. During the winter of 1919-20, I was supervising the making of a new kitchen garden at Hindhead, in a low-lying position facing south. The soil to a considerable depth, was a sandy loam on clay. Manure was difficult to obtain, and for economical reasons it was decided to proceed with the work without using manure. The plot was divided into four parts, two being trenched that season two feet six inches deep. One breadth was planted with Sir John Llewelyn, Golden Wonder, Kerr's Pink, King Edward and Arran Chief Potatos. The variety Sir John Llewelyn, in spite of being cut down by frost in May, produced a moderate crop; so also did Kerr's Pink; the other varieties hardly returned the seed, and were absolute failures. The second plot was used for Brassicas, Beets, Carrots, Parsnips and Onions, which were complete failures. I do not think that fifteen per cent of the seeds of these crops germinated, and a further sowing in April, after dressing the ground with soot and lime, proved almost as disastrous. Peas, although they germinated badly, produced a fair crop, as also did Runner Beans. Sprouts, Savoys and a few Cauliflowers were very good, some wonderful Cauliflowers being produced in the following September. Trenching before sowing small seeds, such as Carrots, Onions and Parsnips, proved disastrous, for the crops were complete failures. Potatos, except the stronger varieties, were also a failure. Had plenty of manure been incorporated with the surface soil to encourage growth in the early stages, very different results would have been obtained. In my opinion, deep trenching and exposing the subsoil must be done with caution. *T. Whitham, St. Edmunds College, Old Hall, Ware.*

——Trenching is certainly beneficial to the soil and also to the subsequent crops, but it is not always advisable to bring the second spit to the top owing to it being far from suitable for planting. The greatest asset to the gardener in the process of trenching is a supply of manure, garden rubbish and leaves. In bastard trenching the general practice is to place a liberal amount of manure in the bottom of the trench after it has been forked up, instead of incorporating it with the bottom spit. The result is that the bottom spit is not improved in texture as it might have been. I saw recently land that had been trenched in which the trench had been filled level with leaves, etc., and stamped down; the result is the trenched ground is over high, and next year no doubt, the leaves, etc., will be dug up in very much the same condition as when they were put in. This, I consider, will not help the subsoil to become more friable and will tend, I think, towards acidity. Light dressings of manure, well incorporated with both the forked up bottom and the next spit in bastard trenching, would greatly help to improve moderate to heavy soils. In the case of chalky subsoils, a certain amount of chalk could, with advantage, be brought to the top and forked in during spring. Soils overlying chalk are very often benefited by such a dressing. I consider that bastard trenching is by far superior to trenching in nearly all cases which come before the average gardener. *Lewis Cave, Copford Hall Gardens, Colchester.*

Primroses and Pollenation.—I was much interested in the leading article in *The Gardeners' Chronicle* of February 26, as it deals with a subject in which I have long been interested, but never in a position to make sufficiently extensive observations. Incidentally, I must point out that the writer is not accurate in classing Bombylius discolor as a bee! It, and its congeners, major, medius, and minor, are two-winged flies belonging to the Diptera, whereas bees of all kinds are four-winged and belong to the Hymenoptera. The commonest species is major, which I have often seen visiting Primroses and other flowers. These flies are parasitic, as larvae in the nests of the solitary bees of the genera Andrena Colletes, etc. *C. Nicholson, Hale End.*

Winter - flowering Myosotis. — A pleasing contrast to the pink and red shades of Primulas and Cyclamen may be made with plants of Sutton's Pot Myosotis. A group of forty plants in the conservatory have been much admired during the past two months. The culture of this Forget-me-not is very simple. The seeds are sown in a pan early in June and placed in a cold frame, the seedlings being subsequently pricked out into boxes. When large enough, these are transferred to three-and-a-quarter-inch pots, and later into six-inch pots. During the first week of October we place the plants on a shelf, near the roof-glass, in a greenhouse with a temperature of about 50°. They commence to bloom in the middle of December, when blue flowers are very scarce. A compost of fibrous loam, with a little leaf-mould and sand suits them, but overcrowding must be avoided as a precaution against mildew. *William Clarke, Copley Gardens, Thornton Hough, Birkenhead.*

SOCIETIES.

ROYAL HORTICULTURAL.

March 8 and 9.—The first two-day show of the year at Vincent Square was fully worthy of the occasion. From now until the late autumn the demands of the space do not permit the exhibition of paintings and garden sundries, and the R.H.S. Hall was filled with a great variety of plants and flowers. Orchids were extensively shown, and these were of considerable beauty and merit. The Orchid Committee recommended two First Class Certificates and four Awards of Merit to novelties. Spring flowers, particularly Hyacinths, forced shrubs of many kinds, and alpines were the chief floral features. The Floral Committee recommended two Awards of Merit to novelties. The Tulip and Narcissus Committee did not recommend any award to novelties, but there were several good collections of Narcissi. There was no exhibit of importance before the Fruit and Vegetable Committee.

Orchid Committee.

Present: Mr. C. J. Lucas (in the chair), Mr. Gurney Wilson, (Hon. Secretary), Mr. R. Brooman White, Mr. Fred J. Hanbury, Mr. Sidney Flory, Mr. A. Dye, Mr. H. G. Alexander, Mr. Fred K. Sander, Mr. Charles H. Curtis, Mr. J. E. Shill, Mr. J. Cypher, Mr. W. H. Hatcher, Mr. J. C. Cowan, Mr. Henry H. Smith, Mr. A. McBean, Mr. T. Armstrong, Hon. H. D. McLaren, Mr. E. R. Ashton, Mr. J. Wilson Potter and Mr. Stuart H. Low.

First Class Certificates.

Cymbidium Flamingo Memoria Sir Geo. Holford (Alexanderi × Merlin).—A magnificent Cymbidium; the very large, exquisitely-formed flowers are of fine substance. The sepals are deep blush colour and the petals white, sometimes tinted blush. The lip is white, tinted blush, with a heavy, deep brown mark at the apex, this deep colour running back in broken lines towards the raised yellow disc. Shown by Messrs. H. G. Alexander, Ltd.

Odontioda Frederick J. Hanbury (parentage unknown).—No plant attracted so much general attention as this. It was a finely-grown specimen carrying one spike nearly four feet long, branched and bearing sixty-one brilliant flowers of good shape and size. The colour is rich reddish-scarlet, with tiny, buff teeth on the edges of the petals; lip dull yellow, but with this ground colour almost covered with deep red scarlet. Shown by Messrs. J. and A. McBean.

Silver Lindley Medal.

The Orchid Committee recommended the award of a Silver Lindley Medal to Messrs. J. and A. McBean for Odontioda Frederick J. Hanbury, and to Messrs. H. G. Alexander, Ltd., for Cymbidium Flamingo Memoria Sir George Holford (see above).

Awards of Merit.

Cymbidium Rosanna (Kittiwake × Alexanderi).—A choice hybrid with lovely pink sepals and petals, and lip with deeper rose and rose-pink colour with red marks on the apex. Shown by Messrs. H. G. Alexander, Ltd.

Odontioda Pittiae var. Empress (Oda. Juliet × Odm. St. James).—In size, form and substance this is one of the finest Odontiodas yet seen. The colour is rose with heavy markings of deep, rich red-brown, while the base of the lip is light yellow. Shown by Messrs. Charlesworth and Co.

Miltonia Beau Brummel var. superbissima (Venus × Bleuana var. Reine Elizabeth).—Although only represented by a small specimen, this is a brilliant Orchid of rich crimson colouring, all the segments being shaded at the margins with deep rose red. The mask is orange-yellow, edged with rose. Shown by Messrs. Charlesworth and Co.

Cattleya Thora, Brockhurst var. (Empress Frederick × Mrs. Pitt).—A handsome flower of large size and good form. The deep rose-purple sepals and petals set off the wide, frilled lip, which is soft orange-yellow, surrounded by purplish-rose. Shown by **Fred. J. Hanbury**, Esq., Brockhurst, East Grinstead.

Groups.

A marvellously fine exhibit of Cymbidiums arranged by Messrs. H. G. Alexander, Ltd., was the most striking feature of the meeting. The display was made on a long run of eight-foot tabling, and all the plants were most effectively arranged and finely shown. Some of the specimens were of large size; one of C. Pauwelsii carried six grand spikes. The colour range arrested the attention of all Orchid lovers, who were specially interested in the specimens of C. Parishii, C. eburneum, C. insigne and C. eburneo-Lowianum—the parents of the splendid variety now available, and for which Westonbirt is largely responsible. A few outstanding sorts were C. Goosander, C. Alexanderi var. Magnolia, C. A. Alabaster, C. Lettie, C. Rosanna of fine substance and warm pink colouring; C. Martin, C. Ringdove, C. Flamingo, C. Butterfly, C. Pepit grandiflora and C. Curlew, yellowish-green, but the outstanding plant was C. Flamingo var. Memoria Sir George Holford, with finely-formed substantial and lovely pink-tinted flowers of great beauty—a worthy plant to commemorate the late master of Westonbirt.

A glorious group of Orchids from Messrs. J. and A. McBean had a large specimen of Cymbidium Ceres var. Profusion as a centrepiece; this plant carried a dozen spikes, each upwards of a yard long. Other choice Cymbidiums were used to form a graceful background, together with finely-grown Odontoglossums and Odontiodas, the former including O. harvengtense, O. eximium, O. Conqueror, O. Martius and O. triumphans. Among the Odontiodas the outstanding specimen was O. Frederick J. Hanbury, with a branched spike of over sixty large and brilliant flowers—probably the finest Odontioda spike ever seen. Miltonia St. Andre, Laelio-Cattleya Eunice alba, L.-C. Schröderiana, the bright L.-C. Arcturus, Epiphronitis Veitchii, Phalaenopsis Rimestadiana, Oncidium McBeanianum and Cypripedium Mrs. W. Pickup were a few other subjects of great beauty and interest.

Messrs. Cowan's group contained a fine selection of Cymbidiums, of which C. Ceres, C. Pauwelsii var. Enchantress, and C. Alexanderi were especially good. Cattleya Suzanne Hye de Crom and C. Enid var. La Perle occupied prominent positions in the group, while Dendrobiums, Cypripediums, the old Ada aurantiaca and Miltonia Bleuana were included in this bright exhibit.

Messrs. Sanders' large group of Cymbidiums attracted a great deal of attention, especially C. Pauwelsii, C. Erica, C. Yellow Hammer, C. Ceres var. The Torch, and C. Alexanderi roseum. With these were associated Miltonia Bleuana Gold Crest, M. St. Andre, very fine; Brasso-Cattleya Primrose Queen, and several fine plants of the broad-leaved Oncidium Cavendishianum.

Coloured Odontoglossums were shown splendidly by Messrs. Charlesworth and Co., and among these were such showy subjects as O. Promerens, O. Creone, O. Muralis, O. Omega, O. Harold and O. Henry VIII, the last a very fine form. O. crispum xanthotes was also well shown, together with Cymbidiums, Odontiodas, Dendrobiums and Vuylstekeara Sylvia. Messrs. Sutton Bros. showed Odontoglossums, Laelio-Cattleyas, Calanthe Wm. Murray and numerous Cypripediums, these last including C. The Great Mogul, with wide, rose, green and brown dorsal sepal.

Messrs. Armstrong and Brown contributed a great variety of Orchids. Odontoglossum Edwardsii figuring in the background; there were several capital Odontiodas, fine Dendrobiums, Cattleya Octave Doin, together with Leptotes bicolor, Coelogyne sparsa and Cirrhopetalum picturatum.

Cypripedium Helen was well shown by Mr. Harry Dixon, who also had Cymbidiums and Dendrobiums. In Messrs. Stuart Low and Co.'s exhibit the leading subjects were Dendrobium Thwaitesiae, Veitch's var., D. Victoria Reginae, Brasso-Cattleya Hans Hunter, Zygopetalum Mackayi, Laelio-Cattleya Schröderae and Phalaenopsis Schilleriana.

Good examples of Dendrobium Findlayanum and D. Wardianum were shown by W. R. Wilson Ward, Esq. (gr. Mr. H. Meryfield), Tinsbury Manor, Romsey. Messrs. Flory and Black showed Laelio-Cattleya Montrose and L.-C. Colleen, two new crosses.

Floral Committee.

Present : Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. A. Turner, Lady Beatrix Stanley, Mrs. Ethel M. Wightman, Mr. H. J. Jones, Mr. J. M. Bridgeford, Mr. Donald Allan, Mr. R. Findlay, Mr. W. H. Page, Mr. E. R. Janes, Mr. Hugh Dickson, Mr. A. E. Vasey, Mr. James B. Riding, Mr. W. B. Gingell, Mr. George Churcher, Mr. Courtney Page, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mr. Charles E. Pearson and Mr. William Howe.

Section B.—Mr. Gerald B. Loder (in the chair), Mr. W. J. Bean, Mr. G. Reuthe, Mr. Amos Perry, Mr. W. B. Cranfield, Mr. Reginald Cory, Mr. E. A. Bowles, Mr. L. R. Russell, Mr. A. Bedford, Mr. E. H. Wilding, Mr. A. Williams, Mr. F. G. Preston, Mr. G. Yeld, Mr. T. Hay, Mr. Mark Fenwick, Mr. Charles T. Musgrave, the Hon. Henry D. McLaren, Mr. R. D. Trotter, Mr. C. J. Lucas, and Sir William Lawrence, Bart.

Awards of Merit.

Crocus Imperati var. alba.—This is a particularly good variety of the well-known purple-feathered Italian Crocus. The large white flowers have definite yellow markings at the base of each segment, and the filaments are of rich yellow and orange. Shown by Mrs. W. R. Dykes, Bobbingcourt, Sutton Green, Surrey.

Helleborus orientalis Prince Rupert.—Many of the varieties of the long-stemmed Oriental species have a nodding habit, and fail to disclose their beauties fully, but this new variety carries its large, twin-flowers well and their great attractions are at once apparent. The round, substantial flowers are of creamy-white colour freely spotted with soft carmine. It is a valuable novelty for the hardy flower border. Shown by Messrs. Barr and Sons.

Rhododendron cilpense. — This attractive hybrid evergreen Rhododendron was raised by crossing R. ciliatum with R. moupinense. It appears to form a neat bush well furnished with two- or three-flowered trusses of very attractive flowers. The latter are rounded, about two-and-a-half inches across, and open widely. They are of good substance and sparkling white, lightly flushed with pink on the upper segments. There are small, rose-coloured spots on the two upper segments. The flower buds are stained a deep rich pink. The shining green leaves are about four inches long and almost elliptical in shape. Shown by Lady Aberconway and the Hon. Henry D. McLaren, Bodnant, North Wales.

Other Novelties.

The tall, rather straggling Rhododendron, Mackenzianum, shown by Lionel de Rothschild, Esq., Exbury, Southampton, bore flowers of uncommon type and beauty. These are produced in rosettes of five or six, and usually a single bloom, though on occasion two, rises from a sheath of bracts quite enclosing the rosy-purple stalks. The milk-white flowers are about three inches across, flushed with rosy-purple on the outsides and have an aromatic fragrance. Two pots of the dainty little Narcissus canaliculatus, from bulbs collected near Mentone, were shown by Messrs. Barr and Sons. These were a great attraction and may be likened to miniature Tazetta varieties. On the table for exhibits of novelties from small exhibitors, Sir William Lawrence, Bt., Burford, Dorking, showed plants of Eucharis × Lawrencei bearing pendulous, globular, white flowers ; E. × burfordiensis, a cross between E. Mastersii and E. Sanderi, which received a First Class Certificate, in September, 1899, and Haemanthus natalensis, bearing an orange-coloured inflorescence. Mr. Charles T. Musgrave, Hascombe Place, Godalming, showed a plant of the uncommon Ranunculus calendrinioides.

Groups.

An immense quantity of splendidly-grown Hyacinths was shown by Messrs. Sutton and Sons. These were arranged in the form of large oval group. The level of the plants was pleasantly broken and the colour effect was exceptionally good. The very many excellent varieties included Ivanhoe, dark blue ; Madame Kruger, Purity and Arentine Arendsen, good whites ; City of Haarlem, yellow ; Queen of Pinks, Orange Cerise, Orange Boven, La Victoire, bright rose ; Dame d'Honneur, pale rose and Marconi, pink.

On a table space, Messrs. J. Carter and Co. had a graceful group of Hyacinths arranged in a series of circles surmounted by elegant plants of Cocos Weddeliana. Their varieties included Moreno, blush ; Roi de Belge, red ; Avalanche and La Grandesse, white ; Marconi, pink ; Lord Derby, pale salmon ; Dr. Lieber, blue ; Ivanhoe, dark blue ; Queen of Pinks, General de Wet, blush ; and Schotel, china blue.

In an interesting exhibit, Messrs. Barr and Sons included several excellent varieties of Lachenalia, such as Goldfinch, Greenfinch, Rosemary and Nelsonii. They also had ample batches of Tulipa Kaufmanniana, Erythronium Dens-canis rosea, several valuable dwarf early Irises, Crocus Kathleen Parlow, a fine white variety and Crocus Pallas, of lovely feathered lilac colour. Behind these useful general border flowers they staged a considerable row of Narcissi. The large Trumpet varieties were very prominent and in addition to several very good seedlings the collection included King Alfred, Anastasia, and Mustapha of rich yellow colours, Alicia, sulphur perianth and lemon corona, and Aerolite.

Rhododendrons of considerable beauty were shown by Vice-Admiral Walker-Heneage Vivian, Clyne Castle, Swansea. The chief sorts were hybrids of R. catawbiense and R. Thomsonii, R. arboreum and the variety roseum and many splendid trusses of R. grande. With these Rhododendrons were shown sprays of Camellias, Pieris japonica and Daphne odora. Messrs. R. Gill and Son had bright trusses of Rhododendron arboreum × barbarum, R. Bernard Gill and R. Cornubia with R. Nobleanum pictum and R. argenteum.

In association with various other shrubs and alpines, Mr. G. Reuthe staged sprays of Camellias and Rhododendrons, Pieris japonica, Acacia Baileyana, Iris reticulata, some good Crocuses and many alpines.

The forced shrubs arranged by Messrs. L. R. Russell, Ltd., included many good varieties of Azalea indica and A. mollis, Prunus triloba fl. pl. and some graceful Vitises. Prunus triloba fl. pl., Japanese Azaleas, Irises and Muscari Heavenly Blue were staged by Messrs. Hodsons, Ltd.

At the back of an attractive sandstone rock garden, Messrs. William Cutbush and Son grouped various Azaleas and Prunuses. In the rock garden they planted Tulipa praestans Tubergen's var., Crocuses, Iris bucharica and other appropriate plants. Messrs. W. M. Wood and Son, Ltd., planted Saxifrages, in variety, Primulas, Erica carnea, Prunus triloba fl. pl., Forsythia suspensa and Spiraea Thunbergii in an attractive rock garden. Under the clock, Messrs. Jeans and Trowbridge had a small rock garden.

A good variety of Saxifrages were shown by Messrs. W. H. Rogers and Son. They also included Soldanella montana, and Cupressus juniperoides, with other alpines. Mr. F. G. Wood had goodly breadths of various Primroses, including the soft mauve Primula altaica, with several species of Pulmonaria.

In a well-arranged rock garden, Mr. Clarence Elliott planted Saxifraga Grisebachii Wisley var., S. Myra, S. oppositifolia splendens and S. Gloria. Anemone fulgens made a bright patch of colour in the exhibit of Messrs. M. Prichard and Son, who also showed Saxifraga Irvingii, S. oppositifolia splendens, S. Grisebachii and S. apiculata alba. Messrs. Tuckers, Ltd., had good plants of S. Salmonei, S. arco-valleyi, S. oppositifolia splendens and S. Burseriana speciosa.

In their exhibit, Messrs. Waterer Son and Crisp included Muscari azureum, Iris sind-pers, Crocus aureus, several distinct Erythroniums and a collection of Cyclamen ibericum.

Mr. J. Robinson and the Misses Hopkins had small collections of useful alpines.

Most attractive groups of the lovely blue Iris Cantab and Iris reticulata were staged by the Rev. H. P. Mayer, Watton, Herts. Messrs. Maxwell and Beale had Saxifrages, Aethionema iberica and Erica carnea in their exhibit.

An admirable collection of alpines in pots and pans was staged by C. G. Kirch, Esq. (gr. Mr. J. Wall), Edenhall, Beckenham. Many of the plants were of considerable size and were flowering beautifully, while all illustrated excellent cultivation. The many distinct alpines included Saxifraga Grisebachii and the Wisley var. S. Stuarti rosea, S. Schilleri, S. Burseriana sulphurea, S. × Gem, S. Jenkinsii, S. His Majesty, S. R. V. Prichard, S. Faldonside, S. Boydii, S. Gloriana and S. Grace Farwell. Daphne Blagayana, Primula Fortunei, a pretty, mealy little plant bearing pendulous lilac-mauve flowers, and the lovely blue Tecophilaea cyanocrocus.

A large exhibit of excellent greenhouse Cyclamens was made by Mrs. R. Emmet, Moreton Paddock, Warwick. These plants, shown in distinct shades of colour, filled a whole length of tabling. Mr. W. Forsyth again staged a good selection of the Caledonia strain of greenhouse Cyclamen.

A neat collection of forced Roses was displayed by Mr. Elisha J. Hicks. His varieties included Climbing Lady Hillingdon, Angele Pernet, Mrs. H. Stevens and Dorothy Dix. Messrs. C. Engelmann, Ltd., showed many good Carnations, including Dorcas, rich dark red ; White Pearl, Red Laddie and Cupid. Messrs. Allwood Bros. and Messrs. Stuart Low and Co. also had attractive collections of Carnations. The latter included plants of Hippeastrums and Camellias. Mr. J. J. Kettle had a good collection of Violets.

Baron Bruno Schroder (gr. Mr. E. J. Henderson), The Dell Park, Englefield Green contributed a large group of handsome Clivia miniata varieties with Dracaena Victoria and D. Deremensis Bausei. The Clivias bore large trusses of exceptionally fine blooms.

Narcissus and Tulip Committee.

Present : Mr. E. A. Bowles (in the chair), Mrs. Brodie, Miss Willmott, Mr. W. Poupart, Mr. J. Jones, Mr. C. W. Needham, Mr. G. Churcher, Mr. C. C. Titchmarsh, Mr. Alfred W. White, Mr. J. de Graaff, Mr. W. B. Cranfield, Mr. F. Secrett, Mr. Charles H. Curtis, Mr. G. W. Leak, Mr. P. R. Barr, Mr. J. D. Pearson and Mr. A. Simmonds (Secretary).

An extensive collection of Narcissi set up by Messrs. J. R. Pearson and Sons included many vases of the Trumpet varieties. The chief were General Townsend, Florence Pearson, white perianth, primrose corona ; Lord Roberts, rich yellow ; Victoria, white perianth, yellow corona ; Golden Emperor and Hon. Mrs. Francklin, white perianth and lemon corona. They also had attractive vases of the double-flowered Argent and the richly coloured February Gold.

The large Trumpets also predominated in the collection of Mr. J. W. Barr. His varieties included maximus superbus, of rich colour ; Brian, rich yellow ; King Alfred and Victoria. Amongst the Barrii varieties were Sunrise, Brilliancy and C. J. Backhouse.

A large collection of bulbs in vases and bowls of fibre was again staged by Messrs. R. H. Bath, Ltd. As before, they were well-grown and made a bright display. The Narcissi included Harmony, Olympia, Madame de Graaff and Butterfly. Chief amongst the many Tulips were McKinley, William Copland, Queen of Violets and Thomas Moore. The exhibit included pans of excellent Crocuses.

Mr. G. W. Miller had a considerable variety of Narcissi, Tulips and Hyacinths. The last-named included King of Whites, King of Yellows, Queen of Pinks and Orange Boven. The best Tulips were Couleur Cardinal, Mon Tresor and Cramoise Brilliant.

Fruit and Vegetable Committee.

Present.: Mr. C. G. A. Nix (in the chair), Mr. J. Cheal, Mr. W. Poupart, Mr. A. Bullock, Mr. A. E. Newby, Mr. E. Harriss, Mr. P. D. Tuckett, Mr. A. Poupart, Mr. E. Laxton, Mr. F. Jordan, Mr. E. Beckett, Mr. H. Markham, Mr. W. H. Divers, Mr. G. F. Tinley and Mr. A. N. Rawes.

Some excellent fruits of Apple William Crump were shown by Mr. J. JONES, Ynys-y-Maengwyn, Towyn-on-Sea, Merionethshire.

Cooked and uncooked tubers of the new Potato Sefton Wonder were shown by the GARDEN SUPPLIES, LTD., Liverpool. This is a seedling from Great Scot, and certified as an immune variety (Sec.).

GUILDFORD AND DISTRICT GARDENERS'.

THE monthly meeting of this Association, held on February 14, was well attended. The President, Alderman W. T. Patrick, J.P., occupied the chair.

Mr. A. J. Joy, for more than thirty years gardener at Snowdenham Hall, read a paper on "Annuals, Inside and Out." Mr. Joy made special reference to Antirrhinums which, if raised in February or March in gentle heat, would be available for summer bedding, and in due course provide a more or less continuous show of colour.

Some plants that are usually regarded as annuals, said Mr. Joy, may be treated as biennials, and under proper treatment will give even better results as such. For sowing out-of-doors, the second or third week in May was recommended.

In conclusion, Mr. Joy advised his hearers not to despise the weaklings amongst seedlings, but to pick them out especially for pot culture, for with good treatment they will make the best plants.

At the next meeting, to be held on Monday, March 14, Mr. A. E. Burgess, Superintendent to the Surrey County Council Agricultural Committee, will deliver an address on "How Plants Grow."

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

LIVERPOOL AUXILIARY.

THE annual smoking concert of the Liverpool Auxiliary of the Gardeners' Royal Benevolent Institution was held at the Washington Hotel, on February 25.

Mr. J. J. Guttridge, Chief Superintendent and Curator of the Liverpool Parks, was Chairman, and in proposing the toast of the Auxiliary, gave a brief résumé of its objects and the good work it did for the gardening profession, concluding by recommending all gardeners to become annual subscribers. Mr. Robert B. Ker, the Chairman of the Liverpool Auxiliary, briefly responded, and added that he was one of the founders of the Liverpool Auxiliary in 1902, and had been on the Committee for twenty-five years.

Mr. W. J. Earl, gardener to the Earl of Derby, announced that he had organised a dance and social evening at the Village Hall, Knowsley, on February 11, on behalf of the Auxiliary Funds, and he had pleasure in handing the treasurer a sum of £14. A hearty vote of thanks was accorded to Mr. Earl for his effort.

An excellent musical programme, under the direction of Messrs. W. Grindley and D. Roberts, provided entertainment during the evening.

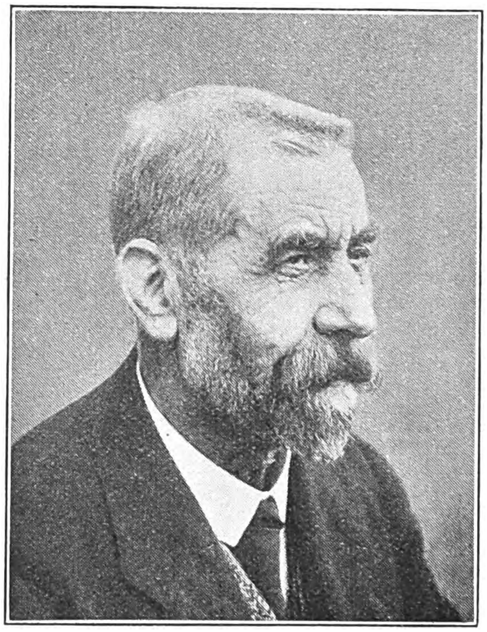
BIRMINGHAM GARDENERS'.

AT the fortnightly meeting held on February 21, Mr. J. Smith presided and Mr. Clive Greaves, of Messrs. Hewitt and Co., Solihull, gave an interesting address on "Delphiniums and Gladioli." He spoke more as a salesman than a grower, but pointed out that both plants had made great strides in popularity since the war, and there was a large trade with America, where the Delphinium craze is rivalling the Tulip boom of a few years ago. A scented variety is reported to have been raised there. A list of up-to-date varieties of each plant was given by the lecturer.

Obituary.

William Longman Corry. — The doyen of horticultural sundriesmen and veteran head of the firm of Corry and Co., Ltd., passed away on Friday, March 4, and was laid to rest on Tuesday last. He died at his residence, St. Katherines, Caterham Valley, after a short illness. During his long life of eighty-six years, he had enjoyed good health, and regularly attended to business until a year or so ago. A portrait and appreciation of Mr. W. L. Corry appeared on p. 42 of *The Gardeners' Chronicle* for July 17, 1926.

Daniel Neilson.—Mr. Daniel Neilson, Smeaton Gardens, Dalkeith, died on February 24, and was buried in the New Cemetery, Dalkeith, on Monday, the 28th ult. He was eighty-seven years of age. Beginning work at an early age in the mines belonging to the Duke of Buccleuch, for reasons of health and the closing of the mines, he rented some land from the Duke and formed a market garden in 1881. He proved to be a successful cultivator of Celery, and was always to the front early in the season. His other produce showed up well in the Waverley market, Edinburgh, also. During late years, he had been taking things easier, and since December, 1926, had been confined to his bed. His wife predeceased him three years ago. He had five sons, two of whom are dead, and two daughters. Mr. Sanderson, his son-in-law, carries on the business in conjunction with the Gibralter Garden, Dalkeith, where he resides.



THE LATE W. P. THOMSON
(see Obituary Notice, p. 170.)

John White.—After an illness lasting about a month, Mr. John White, of Messrs. J. H. White and Son, Worcester, passed away on Tuesday, March 1. Mr. White was in his seventy-sixth year, and was well-known among West of England horticulturists. In his earlier years he was employed at Witley, at Messrs. J. Veitch and Sons' Chelsea Nurseries, at Gunnersbury Park, and in several Irish gardens. After this experience he joined his brother, the late Mr. Joseph White, in the management of the nurseries at Lower Wick, Worcester. He took a keen interest in the gardening charities and for nearly twenty years had been Treasurer of the Worcester Auxiliary of the Gardeners' Royal Benevolent Institution.

GARDENING APPOINTMENT.

Mr. Wm. Balcombe, for the past 17½ years gardener to Mrs. GRAHAM SMITH, at Easton Grey, Malmesbury, Wiltshire, as gardener to the same lady at Sindlesham House, Wokingham, Berkshire. (Thanks for 2/6 for R.G.O.F. Box.—EDS.

TRADE NOTE.

READERS will be interested to learn of the successes gained by the produce of British seeds at the Bombay Presidency Agricultural Show, held at Poona, in October last, under the Presidency of His Excellency the Governor, Lieut.-Col. the Rt. Hon. Sir Leslie Wilson, P.C., G.C.I.E., C.M.G., D.S.O. For the general excellence of their exhibit of flowers, and for the magnificent lawn, from seeds, adjoining the Governor's Pavilion, Messrs. Sutton and Sons received the high award of a Gold Medal. In addition, at the "Garden Competition" organised by the Agri-Horticultural Society of India, both the premier awards, *i.e.*, Challenge Cups in Classes A and D were won by Messrs. Sutton's customers, while the Viceroy's and the Governor's Medals were also gained by exhibitors with the produce of Sutton's seeds.

ANSWERS TO CORRESPONDENTS.

CARNATION LADDIE.—*C. I.* There should be no difficulty in rooting this variety, provided the cuttings are taken from stock plants that have not been fed with stimulating manures. We recommend you to grow a few stock plants for the purpose of producing cuttings. Plants grown under natural conditions should produce good cuttings during November to January, which are the three best months for propagating this variety. Cuttings inserted in a compost of half loam and sand, and placed in a propagating frame in a temperature of from 50° to 55°, should give good results. Another method of increasing this variety is by layering during the spring and summer; large batches may be raised by this method with good results.

CUCUMBERS AND VINES.—*J. H.* There is no advantage in repotting seedling Cucumbers from sixty-sized to thirty-two-sized pots; if the beds are ready they should be planted direct from the seedling pots. Vines that have been kept cool all the winter will start of their own accord in March; you should then close the house, syringe the vines once or twice a day, water the border and supply the necessary atmospheric moisture by damping the paths and borders daily.

NAMES OF FRUITS.—*R. C.* Pear Josephine de Malines. *W. H. M.* Apple Castle Major.

NAMES OF PLANTS.—*Old Reader.* 1, Carex brunnea variegata; 2, Thuya dolabrata variegata; 3, Cryptomeria japonica elegans; 4, Juniperus chinensis. *J. H. W.* 1, Elaeagnus pungens aureo-variegata; 2, Viburnum Tinus; 3, Myrtus communis; 4, send when in flower. *S. D.* Asparagus verticillatus; 2, Daphne indica. *A. R.* Euonymus japonicus aureus.

SUMMER PRUNING OF FRUIT TREES.—*S. B.* The best time to summer-prune your fruit trees is from the middle of June to the middle of July, according to the earliness or lateness of the season. If all the wood was left to grow on some varieties, the trees would soon become a tangled mass of shoots. One summer pruning should suffice in your case, as second or more prunings or stoppings should be avoided. The extent to which a shoot should be shortened requires skill, experience and knowledge of varieties; in the case of Apples, four to eight buds may often be left on the young wood. If the shoot is weak, two or three buds may be sufficient; if strong, four or more had better be left. The leading shoots are generally better left unpruned in summer, unless there is no room for further extension of growth, as this unchecked growth helps to maintain the strength of the tree and tends to increase its fertility. Short, spur-like growths of four to six buds, with a cluster of leaves and a fruit bud at the end should be retained especially on such varieties as Beauty of Bath and Worcester Pearmain.

Communications Received — N. K. R. — D. B.— C. H.—S. T.—E. S. S.—G. H. H.—A. O.—D. G., Hants.—A. F.—J. M.—G. R.—W. M.—M. A. C.— A. M.

THE

Gardeners' Chronicle

No. 2099.—*SATURDAY, MARCH* 19, 1927.

CONTENTS.

Alpine garden
  Gentians 192
  Geum rivale Guildford variety ... 192
American Iris Society 188
Antwerp centenary exhibition 188
Apiary notes 198
Botanical legacy to a free library... ... 188
Burley Wood in the New Forest, the preservation of ... 189
Carnation, leaf-rot of the 196
Chrysanthemums, trial of early-flowering ... 188
Clark, Mr. Heber ... 188
Conference on cultivation 188
Copenhagen Municipal Gardens 187
Flower garden—
  Double Potentillas... 192
French National Horticultural Society ... 187
Fruit Garden—
  Biennial cropping of Apples 200
Fruit garden, the market 199
" Gardeners' Chronicle" seventy-five years ago 189
Garden Scheme on behalf of Queen Alexandra's memorial 189
Hardy flower border—
  Planting herbaceous borders 193
Indoor plants—
  Eranthemum pulchellum 192
  Gloriosa 192
Lawns 187
Lilies, diseases of ... 197
Obituary—
  Cockburn, R. ... 203
  Gill, R. 203
  Haseganu, Ion ... 203
  Moore, Alfred ... 203
Orchid notes and gleanings—
  Oncidiums 192
Rhododendron Mackenzianum 193
Scholarships for agricultural workers ... 188
Societies—
  Cardiff and District Gardeners' ... 201
  Glasgow Spring Show 201
  Orchid Club ... 202
  Reading and District Gardeners' ... 201
  Royal Caledonian Horticultural ... 203
  Spalding BulbGrowers... 203
  Spalding Flower Show 201
  United Horticultural Benefit and Provident ... 202
  Vale of Evesham Asparagus ... 201
  Western Commercial Show 202
Trees and shrubs—
  Eriobotrya japonica 195
  Viburnum fragrans 195
Trenching, deep ... 200
Tulips in Hyde Park 188
Vegetable garden—
  Beans 199
  Stachys tuberifera... 200
Vita glass, experiments with 188
Ward's, Mr. F. Kingdon, ninth expedition in Asia... ... 194
Week's work, the ... 190

ILLUSTRATIONS.

Carnation, leaf-rot disease of 196, 197
Clark, Mr. Heber, portrait of 188
Cymbidium Flamingo Memoria Sir George Holford 191
Gill, Richard, the late 203
Odontioda Frederick J. Hanbury 189
Rhododendron Mackenzianum... 193
Ward's, Mr. F. Kingdon, expedition 194, 195

Supplement Plate.
Copenhagen Municipal Gardens.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 42·5°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 16, 10 a.m. Bar. 30·4. Temp. 50°. Weather, Sunny.

On Lawns.

One of the chief glories of the English garden is the lawn; verdant alike in summer and in winter, close mown and weedless and free from slippery Clover. But that glory is, if not departing, at least suffering from some temporary eclipse. Neglect in war years has not yet been made good—for the harvest of garden work is plentiful and the labourers are ..... expensive. Wet winters have been prolific in the production of moss, and Daisies and Plantain thrive on neglect. It therefore behoves us who have lawns to tend to consider whether there may not be ways of making them perfect once more without the aid of too much labour. American golfers have, it appears, solved the problem of the perfect golf green, and their discoveries may, perhaps, prove useful to us, for it would never do for our pleasant lawns as well as our art treasures to be exported to the United States! The American green-keeper has discovered as the result of experiment, that the perfect golf green of short, crisp, weedless and wormless grass can only be secured if the soil be made thoroughly acid. Whereas most garden plants flourish only in a soil round about the point of neutrality—neither acid nor alkaline—the grasses most favoured in America (species of Agrostis) are only happy when the soil is well on the acid side. To make the soil acid, recourse is had to successive and heavy dressings of those fertilisers which leave acid residues in the soil. In fact, according to this teaching, you do for the grass of lawns exactly the opposite of that which should be done for the garden at large. No lime on the lawns, for that would encourage neutrality of soil and also the growth of Clovers; but fortnightly dressings at the rate of one hundredweight or one-and-a-half hundredweight to the acre of sulphate of ammonia or an equivalent amount of ammonium phosphate. Whereas, however, a liberal dressing of sulphate of ammonia, even for so greedy a crop as the Potato, amounts to say three hundredweights of sulphate of ammonia per acre, the lawn as treated by the American green-keeper may receive in fortnightly doses three or more times that amount. The heavy dressings are put on mixed with a fine, loamy compost, and in this condition the fertiliser must be watered in. As a result of this treatment all those flowers of poverty which we call weeds find life on the lawn no longer worth living. They disappear and along with them go also the lawn's worst enemy, the earthworm, and thus in spite of excess of nitrogen and apparently because of high acidity, the grasses have the lawn all to themselves, and golf secretaries must enjoy a sinecure in the profession of confessors of complaining putters—no Clover, no earthworms, no weeds, and as we may suppose, every hole always holed out in one. Whether these interesting observations can be applied successfully in this country remains to be seen. Experiments of a similar kind made on Canadian golf courses are said to have given promising results. Any ordinary cultivator would naturally expect that such heavy dressings of sulphate of ammonia or of ammonia phosphate would result in extraordinarily rank growth of grass which would make the work of mowing harder even than it is in this country. And, indeed, that may prove to be the case; but our contemporary, *Golfing*, which has published recently an interesting series of articles on the American method, is encouraging experiment on similar lines, and others also who are interested in the subject are giving it a trial. When the results are available, we shall hope to report them to our readers, for if they are favourable, the method should prove one which will give us better lawns at a cost less than that involved in their present maintenance, though that would seem almost too good to be true.

Centenary of the French National Horticultural Society.—In view of the approaching International Horticultural Exhibition in Paris, with which the French National Horticultural Society is celebrating the centenary of its foundation, it may be of interest to trace briefly the history of this Society, which has attained at the present day to a position of such eminence and authority. It was on June 16, 1827, that a little band of French horticulturists, scientists and garden-owners, all animated by a desire to improve methods of cultivation and to promote the interests of horticulture in general, met to talk over the possibilities of establishing a Society, and on the 6th of the following month, July, a general assembly approved the plans made by the provisional committee, and formally created the Society by the name of Société d'Horticulture de Paris. There were, to begin with, about four hundred members, among whose names there are many of historical and horticultural interest—the Duc d'Orléans, Baron de Rothschild, Achille Richard, the botanist; Vibert, the Rose-grower; Vilmorin, of the celebrated firm now at Paris and Verrières. The establishment of the Society was celebrated by a re-union which took place on the 30th August, 1827, on the lovely estate of the Chevalier Soulange-Bodin, at Ris (Seine-et-Oise), to which were invited all the best authorities and most celebrated notabilities of the time in science and art. The Society quickly gained prestige, and was smiled upon by the Government and by the Paris municipal authorities. M. Soulange-Bodin was elected General Secretary, and showed his enlightened interest in the cause of horticulture by offering a prize of 400 francs to be awarded to the discoverer of a method of destroying the larvae of the cockchafer. The first annual meeting took place on August 29, 1828, under the presidency of the Vicomte de Martignac, Minister of the Interior, and in 1830 the Society launched out into a programme of annual exhibitions, in which not only members of the Society, but growers from the environs of Paris and from all parts of France should be invited to send plants for competition. The first of these exhibitions took place in 1831, on the 13th and 14th of June, in the Orangery of the Tuileries. It was a great success, and had an excellent effect in stimulating the growing interest in matters horticultural which marked that particular period. In 1834, another innovation took place in the form of a winter exhibition, held on the 2nd of March, in the St. Jean Hall, at the Paris Hotel-de-Ville, at which forced plants of various kinds were shown. During the early years of the Empire, the Society languished somewhat, in spite of the Prince Napoleon having been nominated its "protector," and the name having been in consequence altered, in 1853, to Société Impérial-d'Horticulture de Paris. By this time, horticultural Societies had sprung up in great numbers all over the country, and in Paris itself the original Society had a formidable rival in a group formed in 1841, which at first called itself merely "Cercle Général d'Horticulture," but which assumed in 1848 the title of "Société Nationale d'Horticulture de la Seine." In 1854, the two societies wisely amalgamated under the title of "Société Impériale et Centrale d'Horticulture, and in 1855 had a triumphant success in an International Exhibition which was held, from May to October, at the Champs Elysées. In 1860, the combined Society made a further step forward in constructing the premises which it still occupies at 84, Rue de Grenelle. During the war of 1870-1, and for some years afterwards, the Society suffered from the general depression prevailing throughout the country, but gradually recovered and resumed full activity. In 1885, the title was altered to the one it now holds, Société Nationale d'Horticulture de France; the Society became increasingly successful, and had already published innumerable horticultural monographs on various subjects. The Great War of 1914-18 found the Society in the plenitude of its power and influence, and though its operations were of necessity largely suspended, or altered in character, they have now been completely resumed, and the Society ranks second to none in importance. This short survey of a few of the principal events in the life of the Society naturally omits much that is of prime importance, but is sufficient to give some idea of the varied nature of its activities. Since 1926, the President has been M. Fernand David, formerly Minister of Agriculture; the General Secretary is M. Alfred Nomblot; and the Secretary-Editor, M. Guillaumin.

Copenhagen Municipal Gardens.—In our issue of October 16, 1926, we gave an account, with illustrations, of the Copenhagen Municipal Gardens, and we now present our readers with a Supplement Plate illustrating another example of the horticultural enterprise shown by the municipal authorities of the Danish capital.

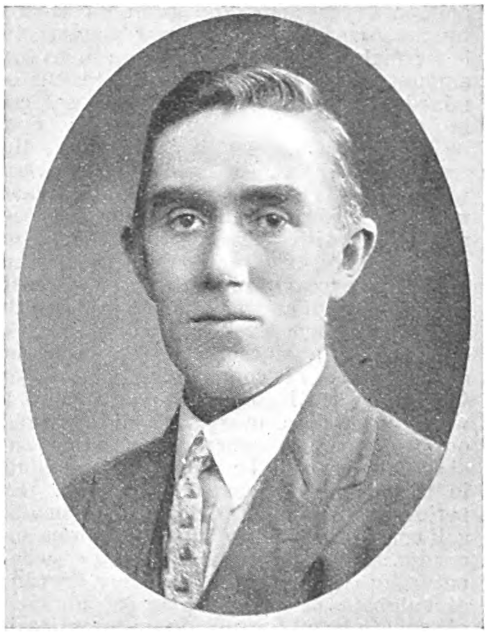
Trial of Early-flowering Chrysanthemums.—The Cheshire School of Agriculture, Reascheath, Nantwich, carried out a series of trials last year with early-flowering Chrysanthemums for commercial purposes. All the varieties were grown undisbudded, except for an individual plant here and there, and Mr. W. E. Shewell-Cooper, who conducted the trials states that he leans "towards the assumption that the time and labour spent on disbudding runs away with anyprofits that mayaccrue through the disbudded flower." Varieties which were outstanding in the trials were Hotspur, an early-flowering crimson variety with a gold reverse, of dwarf-growing habit, very suitable for bunching; Berengaria, a good pink sort, somewhat similar to Shirley Pride; Phoenix, a light bronze coloured variety with slightly Cactus-shaped flowers, which was tried for the first time in 1925, and gave such good results as a market variety that it was again tried in 1926, for it is an excellent grower and promises to become a favourite for bunching; Bronze Early Buttercup, which is also said to be a good spray variety and sells well; Brightness, a light crimson sort, the general favourite in the collection, as adjudged by the remarks of commercial visitors to the gardens; Crimson Circle, a dwarf variety which is in good demand for early bunching; Pink Dame, which was regarded as the best early pink variety in the trial, and found a ready sale amongst local florists; H. M. Carr, a primrose-coloured September White and said to have all the good qualities of that variety; Janet Wyper, an excellent, early-flowering variety, about two feet tall, with creamy-white flowers on long stems; Mrs. Jack Pearson, an early bronze variety, useful for bunching or garden decoration; R. A. Roots, a very strong-growing white variety, "quite worth recommending,"; and Fireflare, an early flowerer, the light bronze blooms being produced on long stems, "a sort that bunches well." During the coming season a trial of new varieties and novelties as advertised in the various Chrysanthemum raisers' catalogues for 1927, will be undertaken under the auspices of the Cheshire School of Agriculture.

Display of Dutch Tulips in Hyde Park.—In the House of Commons Sir H. Brittain recently asked whether any special efforts were being made this year in the way of additional flora and fauna for the beautification of the London parks. Captain Hacking, Under-Secretary to the Home Office, said that the Office of Works was making arrangements for displays on the same lines as in previous years. In addition, there would be a special display of Tulips due to the generosity of the Dutch Bulb Growers' Association. We are informed that this remark refers to a large collection of Tulips presented to H.M. Office of Works by the combined bulb growers' organisations of Holland. The bulbs were planted last autumn in Hyde Park, near Victoria gate, in the large border. The collection consists of 55,000 bulbs belonging to the Darwin, Breeder, Cottage, Rembrandt and Lily-flowered groups. There are over one hundred varieties of Darwin, about fifty Breeder, seventy-five Cottage, ten Rembrandt. and four Lily-flowered varieties. The selection will afford a very good idea of the various groups, and a comprehensive review of the best representatives of each group. Sir Daniel Hall has written a short history of the introduction and development of the Tulip which will be exhibited at the border when the Tulips are in flower. The combined Dutch bulb growers' associations have organised large displays of flowering bulbs, planted in public parks in various countries, and these have proved to be excellent and efficient advertisements for the varieties thus shown to the flower-loving public. The character of such advertisements is absolutely neutral, the sole object being to push the general use of the bulbs displayed, without any preference to special firms; such demonstrations consequently are not only to the benefit of bulb producers as a whole, but also to those firms who sell the bulbs retail.

Botanical Legacy to a Free Library.—The late Sir E. Thomas Holden, J.P., of Glenelg, Great Barr, Staffordshire, who died on November 13 last, aged ninety-five, bequeathed his collection of Mosses and plants and his books on Mosses for the Reference or Natural History Department of the Walsall Free Library, to which institution he also left £100 for the purchase of books of a scientific character.

American Iris Society.—We learn that Mr. J. B. Wallace, junr., 129, Church Street, New Haven, Conn., U.S.A., has been appointed Secretary of the American Iris Society, which has now a thousand members.

Mr. Heber Clark.—One of the oldest of the bulb-growing businesses at Spalding is the one carried on by Mr. Heber Clark, at Clay Lake Bulb Farm, and established by his father. Mr. Clark is a successful cultivator and fairly large forcer of Daffodils, one of his houses containing no fewer than 50,000 Golden Spur early this season. Mr. Heber Clark was a great friend of the late Mr. James K. Ramsbottom, with whom he studied the scientific aspects of bulb cultivation, particularly in connection with the elimination of eelworm disease. Like many other growers, he readily acknowledges the debt he owes to Mr. Ramsbottom's investigations in regard to the diseases of bulbs. Mr. Clark considers that finer results are obtained by forcing Daffodils that have been grown in heavy soil than from bulbs grown in light soil, and has proved his opinion by an experience extending to twenty-five years.



MR. HEBER CLARK.

Centenary Exhibition at Antwerp.—During the coming year, 1928, the Antwerp Royal Horticultural and Agricultural Society will be celebrating its centenary, and it is intended to mark the occasion by holding an important horticultural exhibition. It has been decided to arrange the exhibition in September so that it may not clash with the Ghent Quinquennial Floralies, which will be held in the spring of the same year.

British Mycological Society.—The following programme has been arranged by the British Mycological Society for the London Meeting to be held in the Botanical Department, University College, Gower Street, on Saturday, March 19, 1927, at 11.0 a.m. The speakers and subjects are: Mr. W. R. I. Cook, "Influence of Environment on Infection by Ligniera Junci"; Mr. E. H. Ellis, "Fungi in Japanese carvings"; Mr. E. Wyllie Fenton, "Seed Mixtures and the Incidence of Fungal Diseases"; Miss M. P. Hall, "Zoning in cultures of Monilia fructigena"; Mr. K. R. Mohendra, "Varieties in Sphaeropsis malorum"; Mr. J. Ramsbottom, "Fragmenta Mycologica VII." Lunch will be arranged in the College Refectory.

Scholarships for Agricultural Workers.—The Government has decided to continue the scheme of scholarships for the sons and daughters of agricultural workmen and others, which was approved in 1922 for a period of five years and concluded last year, in a slightly modified form, as recommended by the Central Committee, and the first awards under the revised scheme will be made this year. There are two main grades of scholarship, namely, Junior Scholarships for short courses in agriculture, horticulture, dairying or poultry-keeping, at farm institutes, and Senior Scholarships for diploma or degree courses in an agricultural or allied subject at agricultural colleges or universities, or for courses in veterinary science at veterinary colleges. The normal avenue to the Senior grade is through the Junior grade, but an exception is made in the case of candidates who have passed a higher school certificate examination before the age of seventeen, or a higher school certificate examination with distinction in at least one subject before the age of eighteen. Such candidates may apply for Senior Scholarships (honours degree courses) without passing through the Junior grade. Candidates must be (a) sons or daughters of agricultural workmen, or of working bailiffs and small-holders whose means are comparable with those of agricultural workmen; (b) bona fide workers in agriculture; (c) sons or daughters of rural workers whose means and methods of livelihood are comparable with those of agricultural workmen. The value of the scholarship is such as will enable students to attend the courses without cost to their parents. Provided a sufficient number of suitable applicants is forthcoming, there will be awarded this year about 120 Junior Scholarships, ten Extended Junior Scholarships (for well-qualified candidates who have held Class III. scholarships under the experimental scheme), and ten Senior Scholarships. The closing date for the receipt of applications is April 30, 1927. Forms of application and full particulars may be obtained from the Secretary, Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W.1, or locally from the offices of County Councils.

Association of Economic Biologists.—The Association will visit the Galleries and Laboratories of the Imperial Institute, South Kensington, on Friday, the 25th inst. Guides will meet the members at 2.30 p.m. at the entrance to the Offices of the Institute at the west end of the building (near Queen's Gate). Tea will be served in the Conference Room of the Imperial Institute at 4.30 p.m. The Council will meet at 2 p.m. in the Conference Room at the Imperial Institute. The May meeting of the Association will be held at the Imperial College, South Kensington, at 2.30 p.m., on the 13th: Subject, "Plant Alkaloids," by Lieut.-Col. A. T. Gage, C.I.E., Dr. T. A. Henry, and Dr. J. Trevan. The June meeting will be held at the South-Eastern Agricultural College, Wye, on the 17th and 18th.

Conference on Cultivation.—A conference on "Cultivation: What the Farmer Aims at and How he does it," will be held at the Rothamsted Experimental Station on Tuesday, March 22, 1927, at 11.30 a.m. The chair will be taken by the Rt. Hon. Lord Bledisloe, K.B.E., Parliamentary Secretary to the Ministry of Agriculture and Fisheries. The speakers and subjects include Mr. H. Drewitt, Colworth, Chichester, "Cultivation on the West Sussex chalk and brick earth"; Mr. John Joyce, Preston Bowyer, Taunton, "Spring Cultivation in Western England"; Mr. J. H. Spilman, Gardham, Beverley, "Cultivation Operations on the Yorkshire Wolds"; Mr. J. Steel, Burnawne, Rochford, "Spring Cultivation in an Eastern County"; and Dr. B. A. Keen, Rothamsted Experimental Station, "Cultivation: The Art and the Science." Arrangements will be made to provide visitors who notify the Secretary, Rothamsted Experimental Station Harpenden, with luncheon at a charge of 3s.

Experiments with Vita Glass.—Corresponding series of plants and flowers will be grown this summer at University College, Southampton, and at the Royal Gardens, Kew, to test for greenhouse and garden frames the new type of glass which, unlike ordinary window glass, admits the ultra-violet rays of the sun. At Kew the authorities have decided to equip half an experimental greenhouse with the new glass and half with ordinary glass, and a typical selection of plants and flowers will be duplicated in each section. A similar course will be followed with a wide variety of plants, including Radishes, Sunflowers and Beans, in the large glass corridor with a southern aspect, fronting the new botanical research laboratory at Southampton, which has cost £5,000. The aim of both experiments is to find out whether it is possible by the use of Vita glass, to obtain any such advantages as earlier cropping, better quality, heat saving, better colour, hardier constitution, and greater resistance to disease in plants.

Garden Scheme on behalf of Queen Alexandra's Memorial.—A large and interesting scheme to garden lovers is being inaugurated by the Women's Committee of the National Memorial to Queen Alexandra all over England and Wales. In other hands the scheme has spread to Scotland and to some parts of Ireland. During the Whitsuntide holiday, from May 30 to June 11, inclusive, garden lovers are being asked to open their gardens at a small charge. Owners are responding most generously, and it is expected that nearly all notable gardens will be opened. In due course the Memorial Committee will announce a full list of these gardens, and the facilities for visiting them.

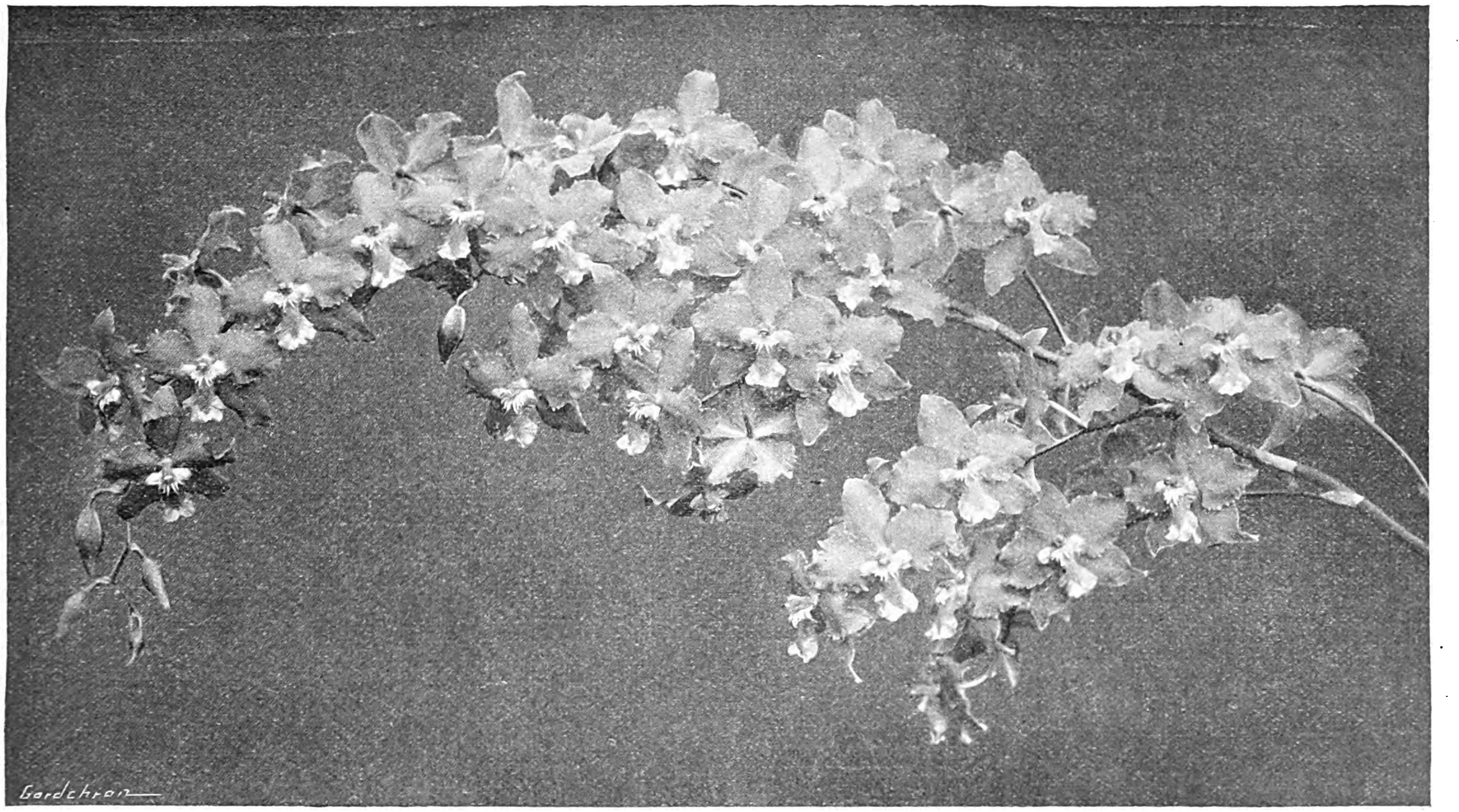


FIG. 92.—ODONTIODA FREDERICK J. HANBURY.
R.H.S. First-Class Certificate and Lindley Medal, March 8. Flowers reddish-scarlet and dull yellow. Shown by Messrs. J. and A. McBean.
(see p. 184).

Bequests to a Gardener and a Gardener's Widow.—The late Mr. George Elliot Meakin, of Creswell Manor, Stafford, left the sum of £100 to his former gardener, Mr. William Foulkes, and £100 to the widow of his late gardener, Mr. John Wilkes.

The Preservation of Burley Wood in the New Forest.—Great concern is being felt amongst many lovers of the New Forest on account of the recent decision of the Forestry Commissioners to fell practically the whole of the ancient trees in Burley Old, a splendid old Beech and Oak wood adjoining the main road from Bournemouth to Southampton. Most of the trees are English Oaks upwards of two hundred years old, and already some of them have been felled. In reply to strong protests the Commissioners seem to have stayed their hand for the moment. In an attempted justification of their action the Commissioners are stated to have explained that the trees they intended to fell were "mature timber," and that the felling was to be carried out in the usual course of forestry arrangement. Against this the Commissioner was reminded that the Act of 1877 expressly provided that "The ancient ornamental woods and trees in the forest shall be preserved," and that the Commissioner of Woods and Forests, in 1882, definitely pledged his department that "Burley Old should not be treated as a plantation in the common acceptance of the term," and that only dead trees and those far advanced in decay should be cut down. At the inquiry now held it was stated that the intention was to preserve a fringe of old trees by the roadside, but the deputation claimed that the whole of Burley Old Wood should be preserved, as the majority of the trees are considered to have another century-and-a-half of beauty.

Appointments for the Ensuing Week.—Tuesday, March 22: Royal Horticultural Society's Committees meet (two days); Wimbledon Gardeners' Society's meeting. Wednesday, March 23: Sheffield Chrysanthemum Society's meeting; Pangbourne and District Gardeners' Mutual Improvement Association's lecture. Friday, March 25: Association of Economic Biologists meeting.

"Gardener's Chronicle" Seventy-five Years Ago.—*Dr. Hooker's Herbarium Specimens.*—We have no little satisfaction in announcing that the Government has commissioned Dr. Hooker to arrange, name and distribute the valuable collections of dried plants made by him in the Sikkim-Himalaya and other parts of India. Should the East India Company enable Dr. Thomson to do the same, of which their well-proved desire to promote science within their territories leads us to entertain a sanguine hope, the vegetation of India will be much more accurately known than that of any part of the world, beyond the limits of Europe, if we except the north-eastern parts of America. The importance of this knowledge to manufacturers, merchants, engineers, and commercial men of all descriptions, was becoming more and more apparent, even before the late Exhibition of all Nations; and now presses with great additional force upon the consideration of those to whom the welfare of India is confided. Dr. Hooker has also in preparation the Floras of New Zealand and Van Diemen's Land, to be published under the authority of the Admiralty. Instructions have been given for the immediate preparation of these works uniformly with the Antarctic Flora, concluded in 1847. Enormous materials for the purpose have gradually accumulated, among the most important of which are those collected by Dr. Hooker himself; to which have to be added the collections of Banks and Solander in Cook's first voyage (1770), and of the Forsters in Cook's second voyage; the plants of Menzies procured in Dusky Bay; the collections of the brothers Cunningham at the Bay of Islands, in 1842; very extensive collections formed by Colenso, Bidwill and Dieffenbach, who alone have reached the mountains and lakes in the interior of the Northern Island; materials obtained at the Bay of Islands and on Banks' Peninsula, by Raoul, during the voyage of the French frigate L'Aube, and numerous minor contributions. *Gard. Chron., March 20, 1852.*

Publications Received.—*Successful Gardens for Every Amateur.*—Published by the Chilean Nitrate Committee, Friars House, New Broad Street, E.C.2., from whom copies may be obtained free, on application.—*A Botanist in the Amazon Valley*, by R. Ruggles Gates; H. F. and G. Witherby, 326, High Holborn, W.C.1; price 7/6 net. *Manual of Cultivated Trees and Shrubs Hardy in North America*, by Alfred Rehder; Macmillan and Co., Ltd., St. Martin Street, W.C.2. Price, 42/- net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Dendrobium Phalaenopsis and Allied Genera.—There are several members of these Orchids which thrive under the same conditions, all of which are most useful plants, with flowers of distinctive colour. D. Phalaenopsis is the most widely-grown species of the genus; D. superbiens, D. bigibbum and several others produce their flowers in the autumn months, when their long sprays of flowers are valuable. Dendrobiums inhabit some of the hottest parts of the world, hence they should be grown in the warmest house the whole year round. The plants will grow either suspended from the roof or on the plant stage, but as they require all the light possible, I prefer to suspend them. Whatever receptacles are used, they should be only large enough to just accommodate the plant. So soon as fresh root-action takes place, any necessary repotting should be done, but if the rooting-material is in good condition the plants should not be disturbed. In potting these Orchids half fill the receptacles with clean crocks and arrange the plants so that the bases of the young growths are level with the rim of the pot. The pseudo-bulbs should be tied neatly to stakes to prevent swaying, and should they be infested with insect pests, take measures to eradicate these whilst the plants are out of their receptacles.

Compost.—A suitable rooting-medium for these Orchids consists of three parts Osmunda fibre and one part Sphagnum-moss cut into rather short portions, with sufficient crushed crocks to ensure a free passage of water. Pot firmly, as this material will hold water much in the way of a sponge if placed in the receptacle loosely. After repotting them, the plants should be watered carefully until the young roots have entered the new material freely, after which they will require liberal supplies of moisture, and frequent sprayings with soft, tepid water. During their season of growth these Orchids enjoy plenty of atmospheric moisture, and will only require shading from bright sunshine during the hottest part of the day. The plants may be grown satisfactorily in a Croton house, or one of a similar nature.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Turnips.—It is yet early to sow Turnips outside in quantity, but a small sowing may be made on good ground in a sheltered position, to follow those that are growing in frames. Early Milan, Little Marvel and Snowball are suitable varieties to sow at this season. Thin the young plants early and keep them dusted frequently with old soot.

Aubergines.—Sow seeds of Aubergines in a warm house, and grow the plants either in pots or boxes. Maintain a temperature of about 55°. Keep the plants well syringed on warm days or thrips will quickly put in an appearance. So soon as the young fruits commence to swell, feed the roots on frequent occasions with liquid manure.

Tomatos.—If seeds of a suitable variety are sown now, in a warm house, and the young plants potted finally into five-inch or six-inch pots, and well hardened, they will be ready for planting outside by the end of May or early in June.

Peas.—Plants that were raised in boxes as advised earlier in the season, and are now well hardened, should be planted on a warm, sheltered border. The soil should be in a suitable working condition. When planting, the drill or trench should be made sufficiently deep so that the roots are not cramped. Place the plants about two inches apart, and allow a distance between the rows of rather more than the height of the variety. When planted, draw a little of the fine soil on either side of the rows and place twigs for support. These will also help to shelter the young plants from cold winds. Keep a sharp watch for sparrows, and if these birds are very troublesome it will be well to net the bed.

Carrots. — Seeds of early, stump-rooted varieties should now be sown in well-pulverised soil on the early border, to provide a succession of roots to those growing in frames. So soon as the seedlings appear, dress the ground lightly with old soot as a deterrent to slugs; the soot will have a stimulating effect on the growing plants.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Begonia Gloire de Lorraine.—Plants of this Begonia that were cut down as previously advised, should by this time have developed good, strong shoots from their bases. Basal cuttings undoubtedly make the best plants, and if these are not sufficiently advanced it will be wise to allow them to grow longer, rather than propagate weak, top growths. This Begonia may also be increased from leaves, but this method is somewhat slow, and I see nothing to recommend it. The cuttings, when available, should be severed with a sharp knife and inserted several together in a small pot containing a mixture of loam, leaf-mould and a little peat, with sufficient sand and small charcoal added to keep the compost open. The cuttings should be stood in a propagating frame, for preference on a mild hot-bed of leaves, where a temperature of 65° to 70° may be maintained. It is desirable to remove the light every morning for a short time to allow the condensed moisture to disappear, after which it should be replaced. Other varieties of this section of Begonias, such as The King, Turnford Hall and Mrs. Peterson require similar treatment.

Winter-flowering Begonias.—Begonias of the Mrs. Heal and Optima type should now be encouraged to produce good, strong shoots which are to be used for propagating purposes. The old stools may be watered a little more freely than hitherto, but at the same time with discretion. Fumigate the plants, as previously advised, several times immediately they show signs of active growth, especially where mite was troublesome last season, but in any case it is wise to start with clean stock.

Hybrid Calceolarias.—These plants should not be allowed to become starved in their pots. No stimulant is more suitable for these plants than liquid manure, which may be used on alternate waterings.

Winter Pelargoniums.—Cuttings of Zonal Geraniums for winter flowering should be obtained with as little delay as possible. They may be placed singly in small pots or several around the sides of a larger receptacle, provided the roots are not allowed to become an entangled mass before potting the plants singly. The cuttings should be inserted and made firm, and the pots afterwards placed on a shelf in gentle warmth, but free from excessive atmospheric moisture; failing this they should be stood in the warmest part of the house. To obtain large, stocky specimens, the plants should be pinched several times during the summer; to obtain extra large specimens some of the old plants should be retained, cut back, and encouraged to break into new growth, after which they should be potted on. During the summer all flower-buds should be removed and the growths pinched to promote a stocky habit. Summer-flowering Pelargoniums should be kept growing with as little fire-heat as possible. Feed the plants with liquid manure, and fumigate or spray them with an insecticide to keep green fly in check.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Late Orchard Houses.—Houses containing a mixed collection of late trees will soon present an interesting appearance, especially where flower buds are plentiful. If Pears, Plums and Cherries are grown, hard forcing should not be attempted, but the house ventilated liberally, day and night. A good crop is best ripened under the influence of summer heat. A temperature ranging from 43° to 48° at night and 55° to 60° by day, with plenty of air, will bring forward the perfectly-formed blossoms, which will set freely without fire-heat, but a little artificial warmth should be available to ensure a buoyant atmosphere. The trees should be watered carefully and syringed regularly on fine mornings until they come into flower. When this stage is reached, a dry atmosphere, a low night temperature, and a somewhat brisk heat with a free circulation of air by day will be favourable to fertilisation. Daily attention with the brush will aid pollenation, and when the fruits have set, syringe liberally and close the ventilators early. The house should be well fumigated before the trees come into flower.

Melons.—Although the winter has, on the whole, been mild, young Melon plants have not made much progress, therefore the best method of meeting failures is to put in a few fresh seeds at short intervals. After this date the plants will make good progress; their requirements are a steady bottom heat of 80°, a temperature ranging from 66° to 70° at night and 75° to 85° by day, a moderate amount of atmospheric moisture, a little ventilation when the weather is favourable, and careful watering. The compost should consist of fairly heavy loam made porous to the passage of water by the addition of old lime rubble and a little charcoal. The growing of cordon Melons is as simple as growing Tomatos; all stem laterals are removed up to the first wire of the trellis and the shoots pinched at the first leaf onward until female flowers are plentiful. When these are ready to open, pinch the point out of the main shoot and pollenate each flower. Laterals bearing the young fruits should be stopped at the first joint beyond the fruits, when two or three of the latter of uniform size should be selected for the crop. Support the Melons by nets as they increase in size, and carefully preserve every old leaf from injury, pinching all remaining laterals to prevent crowding. To maintain a continuous supply of ripe fruits, two or three small compartments are necessary, and a succession of young plants always ready to be planted as the last fruit is cut.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Autumn-fruiting Raspberries.—The canes, if not already shortened, should be cut down to within a few inches of the ground. Work the soil between the rows and at the same time dig up any suckers that are not required. When this has been done, apply a mulch of manure. Autumn-fruiting Raspberries need liberal treatment to obtain the best results, and more especially if the land is light and porous. Plants growing on land in good heart and of a rather heavy texture should be mulched with leaf-soil, which will serve to keep the roots moist during the summer.

Arrears of Work.—All arrears of planting and pruning should be completed as early as possible. Both Pears and Apples promise to develop plenty of blossom, and the buds are large and plump, though quite forward enough owing to the very mild weather of the past few weeks. Varieties of Pears are numerous, and to keep up a long supply of good fruits, suitable sorts should be chosen for planting. To obtain the best results, late varieties should be grown in good positions and given ample moisture at the roots in hot, dry seasons. Liquid manure, supplied liberally at intervals to all trees bearing heavy crops of fruit, will not only help to increase the size of the individual fruits but prove very beneficial in building up stronger buds for the following season's crop. Early varieties may be grown in much cooler positions as bush specimens. Espalier trees and those growing against west and east walls should have heavy mulchings of manure placed over the roots, especially if the soil is of a light, porous character, and when the crops are heavy.

Morello Cherries.—These trees having been pruned, trained and put in order generally, should receive attention at the roots. A certain amount of the old soil should be removed from above the roots and a rich top-dressing applied. Plenty of lime, bone-meal or some other concentrated manure should be mixed with sweet fibrous loam in preference to using decayed farmyard dung as a dressing for these Cherries.

Blackberries.—These fruits are well deserving of more attention than they usually receive and should be grown more extensively where soft fruits are in demand. The berries are very serviceable for making jam, jellies and tarts. The plants may be grown against walls, fences and poles. A good plan is to grow and train them on stakes several feet high, cut away all the old canes which have borne fruits each year, and train in the young shoots to fruit the following season. There are several useful varieties in commerce. The Veitchberry is a splendid sort, and should not be overlooked by those about to plant.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Polyanthus and Auricula.—The many fine strains of these popular flowers are valuable for furnishing a display of colour during the spring in beds or borders, either alone or interplanted with spring-flowering bulbs. They are also very charming used in more informal ways; for example, as an under-planting in big beds of deciduous shrubs, or in large, informal drifts in thin woodland, the partial shade and shelter they obtain in such situations suiting them admirably. The seeds should be sown now, in pans or boxes, which should be placed in a cold frame and kept shaded until germination takes place. When large enough to handle, the seedlings should be pricked off into boxes of rich soil, and later hardened and planted out in the reserve garden in rich, well-manured ground. In the south, at least, it is an advantage to grow them in partial shade during the hottest part of the day. During spells of dry weather it may be necessary to afford them water at the roots.

Cowslips and Blue Primroses.—Seeds of the Cowslip should also be sown now, and the plants treated in the same way as advised for Polyanthus. Blue Primroses should be raised from seeds of a good strain. These are very charming planted in the partial shade of bushes or in thin woodland. In the immediate neighbourhood of London they do not seem to be a success, as the deleterious atmosphere seems to affect the colour, and this, I have no doubt, is true in the neighbourhood of other large towns.

Pentstemons.—Young stock in cold frames should now be lifted and potted, returning the plants to the frames until they are re-established at the roots. Towards the end of the present month they may be stood out-of-doors. Where time and space does not permit of treating the plants in this way, they should, if their flowering quarters are occupied by other plants, be lined out in the nursery and, as in the case of Violas, have flaky leaf-soil placed about their roots. They will be best planted direct in their flowering quarters towards the end of the present month, but where the beds are occupied with spring-flowering subjects this is not always possible.

Violas. — Young plants that have been wintered in cold frames should now be planted out where they are intended to flower, but if the ground is still occupied by other plants, they should be set for the present in the nursery garden. If a sprinkling of flaky leaf-soil is placed about their roots it will ensure them lifting with good balls when they are transferred to their flowering quarters.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Planting.—The planting of deciduous subjects should now be completed as speedily as possible. Should the weather prove windy and dry, these latest-planted specimens should be given at least one good soaking with water. All the larger specimens should be staked securely so soon as planting is completed, as March is a windy month and much damage is done to newly planted trees and shrubs if they are allowed to sway backwards and forwards with the wind.

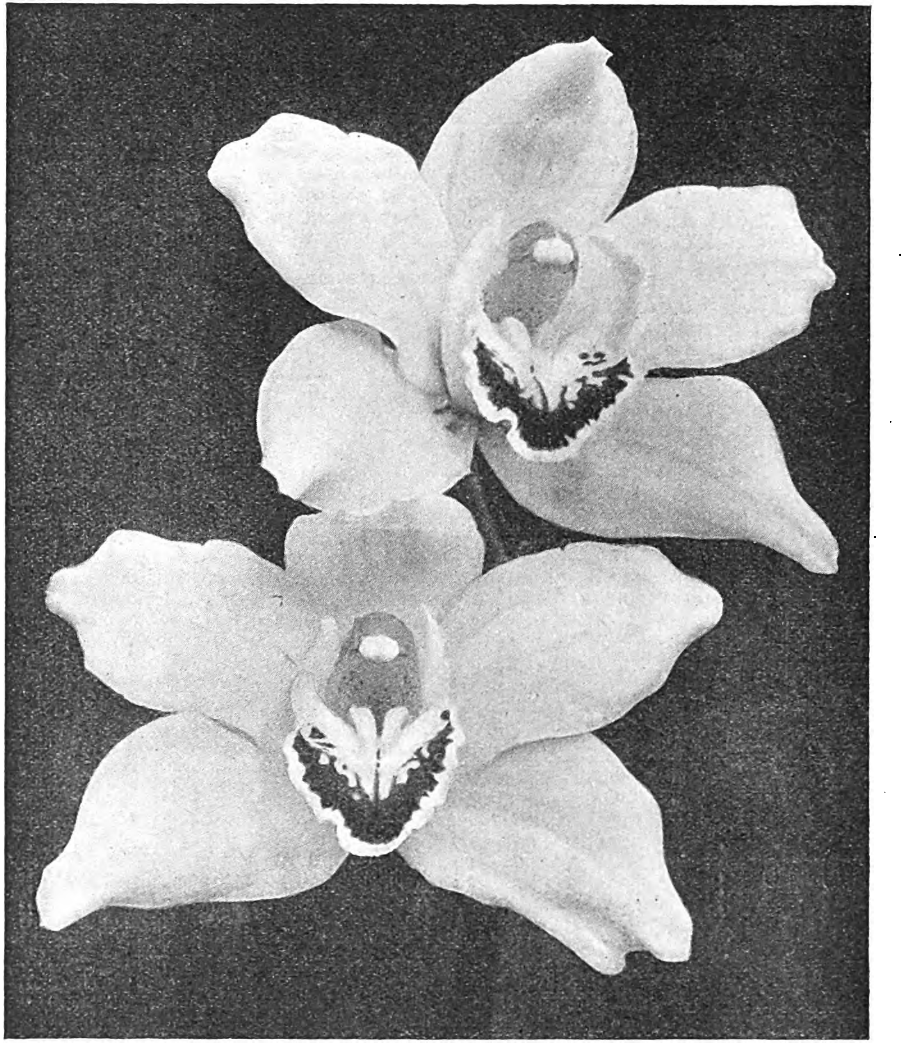


FIG. 93.—CYMBIDIUM FLAMINGO MEMORIA SIR GEORGE HOLFORD.

R.H.S. First-Class Certificate and Lindley Medal, March 8. Flowers, blush with red-brown markings. Shown by Messrs. H. G. Alexander, Ltd.

(see p. 184).

Rock Gardens.—The various subjects in the rock garden are on the move; indeed, many of the early plants are already making a good display. Some of the Saxafrages, such as S. apiculata, S. oppositifolia and S. Salomonii, have been in flower for some time; several of the early Primulas are also in bloom, and with the various Scillas, Chionodoxas, Eranthis, etc., the rock garden in March has many attractions. The rock garden should be made tidy, and a top-dressing of suitable compost given to all plants which require it, such as those showing roots on or near the surface. Where it is intended to remove some of the coarser-growing plants in order to make room for choicer specimens, this work should be done at once. Remove the exhausted soil and refill the pockets with a compost suitable for the special plants to be re-set.

Fruit Trees in Flower.—As Peach and Nectarine trees are in bloom, also other fruit trees, such as Plums, Apricots and Pears, growing in cool houses where no fire-heat is used, attention must be given to pollenating the blossoms in order to secure good crops. Different methods are employed to secure this, but the surest and best is to go over the trees carefully with a soft brush made of a rabbit's tail tied to a light cane, passing the brush from flower to flower with a gentle twirling motion, about the middle of the day, preferably when the sun is shining. To protect the eyes from the glare of the sun, shaded goggles should be worn, and a close observation of the state the pollen is in, whether it is yellow and easily dispersed, will assist the operator by showing which trees, and even which portions of the trees require attention first. By this means a heavy crop of fruits may be secured, and it will be an easy matter later to select the best-placed specimens for retaining, removing the others while they are quite small. On one occasion I placed a hive of bees in the fruit houses as an experiment, while the trees were in flower, and although quite satisfactory from the fruit-setting point of view, the great numbers of bees which perished in trying to find their way out of the houses, even though the ventilators were open, deterred me from doing so again.

INDOOR PLANTS.

ERANTHEMUM PULCHELLUM.

This plant makes a fine display during the early winter. If the plants are cut back now and stood in a warm house shoots suitable for use as cuttings will soon develop; the shoots should be detached when they are four inches to five inches long, inserted in an open compost, and placed in a propagating frame, where they will soon form roots.

The plants should be potted singly before the roots become entangled, and when well established they may be grown on in a light house. Pinch the young shoots once or twice to ensure a stocky growth. They will make useful flowering plants in six-inch or seven-inch pots next autumn. *T. P.*

GLORIOSA.

If a portion of the stock of Gloriosa superba, the so-called Spider Lily, is potted at intervals, a succession of flowers will be obtained. The last batch of tubers potted in June will commence to bloom when those potted at the end of February are passing out of flower.

A moist, warm atmosphere is essential for the successful cultivation of this exotic plant. If the house is slightly shaded, the flower stems will grow longer than if exposed to full sunlight, which is an advantage if the blooms are used for table decoration.

Gloriosas require a rich, rough, open compost. Single tubers may be grown in seven-inch pots, or several may be placed in receptacles nine inches in diameter. When the plants cease flowering and the bine commences to change colour, they should be dried off gradually, storing them during the winter in a warm, dry place.

G. Leopoldii flowers several weeks in advance of G. superba, when started together. Its flowers are more open, the perianth segments wider and less undulate. This variety is similar in appearance, if not identical, with G. Rothschildiana, a fine species introduced from the Congo some two decades ago. *F.*

ORCHID NOTES AND GLEANINGS.

ONCIDIUMS.

The genus Oncidium is one of the most extensive in the Orchid family. The species are found wild over a vast area, and comprise plants that will succeed in the warm, intermediate and cool houses. They are, however, not cultivated so extensively as formerly, as they are not imported in such large quantities as in past years. Many of them are still regarded by cultivators as refractory subjects, and difficult to keep in a thriving condition over a series of years; this may be true of some, yet many have proved so successful under cultivation over a long period as to warrant their cultivation on an extended scale.

Specimen plants have great decorative value, whilst the light sprays of flowers have few equals for use as cut flowers. Whilst many of the Oncidiums are found growing wild with other Orchids which grow quite satisfactorily under cultivation, it is remarkable that many of the Oncidiums refuse to thrive. The flower-scapes of the greater number of them are out of all proportion to the size of the plants, and in many cases the latter are allowed to produce flowers before becoming thoroughly established. This should not be permitted, neither should the scapes be allowed to remain on the plants for too long a time.

Amongst the warm house Oncidiums the following may be depended upon to grow: and, with rational treatment, produce flowers year after year:—O. ampliatum, O. Kramerianum, O. Papilio, P. Lanceanum, O. luridum, O. bicallosum, O. Cavendishianum, O. carthaginense, O. pulvinatum and O. splendidum. Intermediate house kinds include: O. altissimum, O. bifolium, O. divaricatum, O. flexuosum, O. hastatum, O. Harrisonianum, O. incurvum, O. incurvum album, O. maculatum, O. phymatochilum, O. pubes, P. sphacelatum and O. Wentworthianum.

O. cheirophorum, O. concolor, O. excavatum, O. Forbesii, O. leucochilum, O. olivaceum, O. ornithorynchum and its white variety, O. Phalaenopsis, O. tigrinum, O. varicosum, with the whole of the Cyrtochilum section, which includes O. macranthum, O. lamelligerum, O. monachicum, O. serratum, O. superbiens and O. undulatum, will succeed in a cool house. There are many others which may be grown for a considerable time, but I have purposely omitted those that are short-lived or difficult to cultivate.

Some few hybrids have been raised, whilst many which were regarded in the past as species are now known to be natural hybrids. Oncidiums have also been crossed with Cochliodas and other Orchids, and are known as Oncidioda, Charleswortheara, Wilsonara and Odontocidium, which, combined with the species, make a most beautiful family of plants, the flowers of which may be enjoyed the whole year round.

The culture of the Oncidiums named is comparatively easy, provided the plants are grown in small receptacles, according to the habit of the individual plant, using pans in some cases, pots in others. A mixture of peat, fibre and Sphagnum-moss provides a suitable compost. The plants enjoy a humid atmosphere and a plentiful supply of water at the roots whilst in growth, with a drier atmosphere and only sufficient water at the roots to prevent shrivelling when at the resting stage. *J. T. B.*

ALPINE GARDEN.

GEUM RIVALE GUILDFORD VARIETY.

The variety of Geum rivale, which bears the name of Guildford variety and sometimes Leonard's variety ,is a very beautiful form of our native Water Avens, G. rivale, which has a graceful, pendent habit, but dull and unattractive flowers. The variety introduced by Mr. Leonard has blooms of a delightful shade of old rose, and they are produced freely. Being a a form of the Water Avens, G. rivale Guildford variety needs plenty of moisture. In suitable positions it will grow eighteen inches high, but is dwarfer in dry soil. It begins to bloom early in summer and continues in flower over a long period. It soon increases in size, and may be propagated by division in the spring or autumn. *S. Arnott.*

GENTIANS.

I read Mr. W. Ingwersen's interesting article on the Gentians (*Gard. Chron.*, February 26, 1927) with the same pleasure that it must have aroused in the minds of other would-be growers of these fascinating plants. As he refers to the white variety of G. asclepiadea, I may remark that fifteen years ago I got a plant from The Val di Genova, in the Presanella Alps, and it is flourishing in my garden. It is planted in old peat overlying a raised bed of burnt clay, and from its appearance it would seem this is just what it requires. Growing under the scanty shade of some Azalea bushes it leaves nothing to be desired in its vigour and floriferous habit.

Many Gentians, as Mr. Ingwersen hints, are "kittle cattle," and I found the common G. acaulis quite a disappointing plant, till, in despair of getting it to flower decently, I cast a number of clumps into stiff loam under a Holly hedge—the last place I would have expected it to tolerate. But there it has increased and flowers with the utmost freedom. The finest belt of G. acaulis I ever saw was in the garden of Mr. Clark near Glastonbury, where it formed a long border, some twelve or eighteen inches wide, of intense blue. I asked Mr. Clark "how he did it," and his disconcerting answer was that it was just put there and left reasonably alone. Truly the way of a Gentian, like that of some Lilies, is almost past finding out, and if it "does," it seems little credit, and if it "won't," but little discredit, to its lover.

I fancy that some of these plants may be partial saprophytes. The brittle roots, with their often abundant mycorhiza, at least suggest it. *J. B. F., Gerrards Cross.*

All alpine plant enthusiasts will have read Mr. Ingwersen's article (p. 143) on Gentians with interest. The writer, we all know, is a past-master in propagation and cultivation. I must admit to some disappointment at his omission of a few species which should certainly have been included in so comprehensive a list of the Gentians. Surely Gentiana scabra and G. septemfida should have been considered worthy of mention—the latter has a rare and beautiful Cambridge-blue form, as has also G. asclepiadea—as the needs of these two are easily satisfied, any well-drained, ordinary garden soil suiting them well. I rather suspect that G. scabra prefers a limestone moraine, however.

Two further invaluable and easy species are G. lagodechiana and G. Freyniana; these, I think, like a little peat at their roots, but are not adverse to lime; sun and good drainage in winter are essentials. One little gem which I obtained when Farrer's Plant Club came to an end is G. Lawrenciana. Although it is very difficult to please, I have had it several years; it is much like a minute G. Farreri in all its parts and when it condescends to flower, does so at the end of the season.

Of Gentiana Purdomii I can speak with some authority, having grown it to the fourth and fifth generation from the seeds which it lavishly produces and which germinate like Cress. It is essential to sow thinly, otherwise the seedlings, which come up at once if autumn sown, are liable to overcrowd each other and damp off in the winter season, even if kept in a frame. The adult plant likes sunshine and a good loam containing lime. I suspect that it would also appreciate some old manure buried deeply below its roots.

I once had a plant of what was said to be G. Kurroo, andI could not distinguish it from G. Purdomii, except that it was slightly larger in all its parts; neither of the two species seem to like the scree treatment with me.

The easier Gentians, such as G. septemfida, G. lagodechiana, etc., can be increased by chopping the stool into two or more pieces, like any ordinary herbaceous plant, but it is very true that the more exacting sorts do not like interference with their roots. I have found collected plants difficult to establish, even after having recuperated them in the sand box, and when they had produced a mass of roots.

I make it a practice of growing a batch of G. verna from seeds each year; the young plants flower in two or three years at the most, and such plants appear to be very accommodating. There are quite a number at the moment showing promise of flower; some are in moraine, others in peat, and still others in sandy loam, but their favourite mixture appears to be one of peat, leaf-mould and brick dust. *Maurice Amsler.*

FLOWER GARDEN.

DOUBLE POTENTILLAS.

The older double Potentillas are excellent garden plants, producing a good effect in the borders and giving a variety of colour. They may not appeal to many so forcibly as the newer Gibson's Scarlet and a few others of recent introduction, but they are capital border plants, perfectly hardy and require little attention beyond staking, tying, lifting and replanting occasionally.

They have fine, Strawberry-like foliage, and produce a succession of double and semi-double flowers from June until well into autumn. They grow from one to two feet high, and being somewhat trailing in habit they require to be supported by short stakes to produce the best effect. While they will grow in any kind of soil, a good, fertile loam, well-manured and deeply-dug gives the best results. They may be planted now for blooming this season.

Purchasers who receive small plants with a single crown may be warned that they cannot judge of the value of these Potentillas for two or three years, until the clump has attained a good size.

Large clumps of some varieties present a grand sight. These double Potentillas are of hybrid origin, and quite a number of varieties have been selected and given varietal names.

The following is a list of choice varieties:—Arc-en-Ciel is a showy variety with a ground colour of yellow, flaked with crimson; it is still a favourite with growers of these flowers; a good variety which bears the unattractive name of Beelzebub, is one of the darkest, the flowers being a deep red; Californica or Californie, is a pretty canary-yellow variety; Emile has red flowers, edged with yellow; Hamlet is a dark crimson variety, and a favourite with many; it is very showy in a mass. The large-flowered Mons Rouillard has crimson maroon flowers prettily edged with yellow; Mont d'Or is an excellent sort with very fine double yellow blooms; Panorama is orange with purple stripes; purpurea plena is purplish-crimson, and, personally, I do not admire it so much as others; rosaeflora is dark red; Vase d'Or is a very fine, bright yellow variety; the late-flowered Yellow Queen is a capital sort with showy yellow blooms; Vulcan is deep crimson, and Victor Lemoine has bright red flowers, edged with yellow. Other varieties are in the market, but a choice from the above will give satisfaction to the grower.

Propagation is effected by division. *S. Arnott.*

HARDY FLOWER BORDER.

PLANTING HERBACEOUS BORDERS.

The present is a suitable time for making new borders. Where the ground has been well-prepared during the winter, by manuring and double-digging, the surface soil may be again stirred with a fork, when it will be found to dry rapidly enough to proceed with the work of planting.

Many schemes are employed to make these borders a feature, and a considerable amount of knowledge of the plants utilised is necessary, such as their respective heights, time of flowering, as well as the colour of their flowers, to ensure a border which will be attractive for at least nine months in the year. Established borders also require attention at this time, and any of the coarser plants which have outstayed their welcome should be removed to the woodland or wild garden, and after making the sites previously occupied by them good again by the addition of fresh soil and well-decayed manure, their places may be filled by some of the newer or improved varieties. The ideal herbaceous border should not include annual plants, but be filled only with those of a perennial habit, of which there are thousands to choose from, while a few choice shrubs interspersed will give the borders a partially furnished appearance even in the depth of winter. *H.*

RHODODENDRON MACKENZIANUM, FORREST.

Since the late Mr. Reginald Farrer described this interesting and remarkably distinct Rhododendron, on p. 302 of *The Gardeners' Chronicle* for June 21, 1919, enthusiasts in the culture of Rhododendrons have been closely watching the development of the seedlings. Accompanying the article is a figure of Farrer's No. 801, which has since been identified as R. Mackenzianum. It was the first Rhododendron found by the collector (on April 6, 1919) during his second expedition on the Burma-Chinese Alps. He describes it as a "tall tree with a gaunt, bare bole like a Scotch Fir, but of a brilliant lacquered-looking red, carrying a domed crown of solid soft pink blossoms. As the trunk, a foot through and fifty feet high, had no foot-hold, it became necessary to shoot down blossoms." Subsequently, R. Mackenzianum was found fairly general at 7,500 feet to 8,000 feet at Hpyepott and Hpimaw in North-East Burma.

A year previously, Mr. George Forrest—in April, 1918—was the first to collect R. Mackenzianum in the Shweli-Salween divide in Western Yunnan, at 10,000 feet (Forrest No. 16,111). He describes it as a shrub twelve feet to twenty feet high, growing in dense mixed forests and Pine forests. Curiously enough, R. Mackenzianum, Forrest No.'s 17,819 and 17,832, were collected in East Upper Burma at 9,000 feet to 10,000 feet during April, 1919, the same month and year as Farrer's 801.

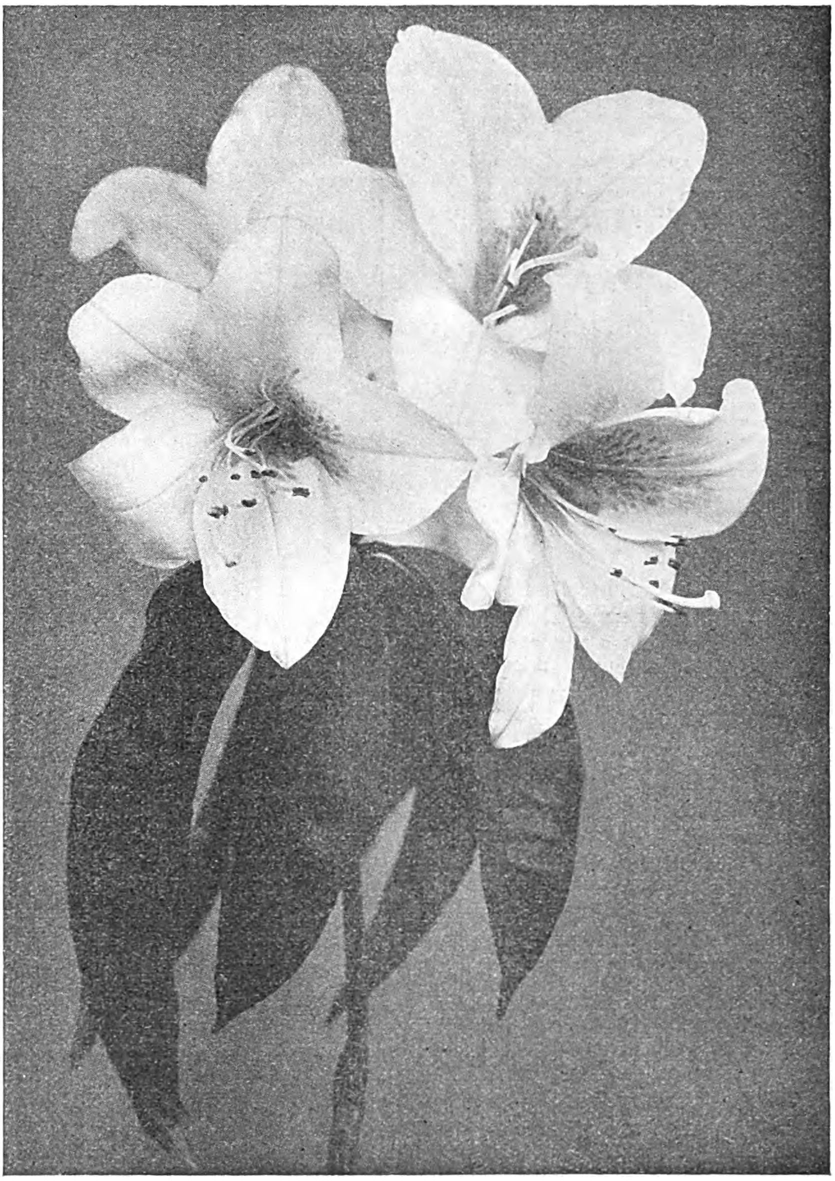


FIG. 94.—RHODODENDRON MACKENZIANUM.
Shown at the R.H.S. Meeting of March 8, by Mr. Lionel de Rothschild.
(see also pp. 185 and 195).

In a wild state, R. Mackenzianum is a straggling bush or tree, from about eight feet to forty feet in height, often with a distinct and attractive trunk. The leaves are borne in clusters of five to seven or eight at the ends of naked, annual growths. They are four inches to six inches long, one inch to one-and-a-half inch wide in the centre, gradually tapering to the ends, the upper surface bright, glossy green, the under surface paler, the whole leaf being distinctly glabrous and tinted with red on the outer edges.

The flowers are arranged in a fascicle of one- or occasionally two-flowered inflorescences, five or six in number, at the ends of the shoots surrounding the vegetative bud. This it will be noted, is just the reverse of the position occupied by the growing buds in most Rhododendrons, *i.e.*, surrounding the flower truss. The stalks of the flowers are enclosed by a sheath of large, purple-tinted bracts. The five-lobed flowers are three inches to three-and-a-half inches across, white, flushed with mauve, with a large, yellowish-green blotch, and pleasingly fragrant. Outside, the lower part of the flower is flushed with rosy purple. There are ten stamens of unequal length and a style about two inches long.

Though the plant exhibited by Mr. Lionel de Rothschild, from his garden at Exbury, at the R.H.S. Meeting, on Tuesday, March 8, and 9 (Fig. 94), was a straggly specimen, seven feet high, it proved much more interesting to Rhododendron enthusiasts than if three or four flowering sprays had been cut and placed in a vase. The plant had been grown in a greenhouse, and the species is not likely to be hardy in this country, though it may be possible to flower it against a sheltered wall in the south and west. Forrest's form, collected at 9,000 feet, to 10,000 feet, may prove to be hardier than Farrer's collected at 7,500 feet.

R. Mackenzianum belongs to the Stramineum series, which also includes R. Wilsonae, a closely allied species. *A. O.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the **PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.**

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard, 1543.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

MR. F. KINGDON WARD'S NINTH EXPEDITION IN ASIA*

VIII.—The First Climb.

My hut was ten feet square and about the same in height, built of unhewn logs and, therefore draughty; indeed, I had an excellent view of everything going on outside through three of the walls, the fourth being against a bank. To obtain more privacy and less wind, I hung canvas sheets against two of the walls. The roof consisted of a Bamboo framework tiled with the huge leaves, or rather, leaflets, of a Schefflera common in the forest. After the first month it frequently leaked, but the holes were easily stopped by inserting fresh leaves.

Mother earth composed the floor but, unfortunately, during the rains so much water oozed up from below that the hut was practically afloat; so I had a flooring of split Bamboo laid down, though even that was awash in the summer. A trestle ran alongside each wall, and on these I arranged all my boxes, out of the wet; a camp bed, table and chair completed the furnishing. In two respects I was particularly well off; the hut was as thoroughly well illuminated as it was ventilated, and that was a great score; secondly, in one corner I was able to keep a fire burning all the time, and my first care was to fix a couple of Bamboo racks immediately over the fire. On these racks my specimens, flower presses and clothes were for ever drying, and though, of course, everything was smoked to a uniform mahogany, it was the only way to keep specimens from utter ruin in the warm, saturated atmosphere, or even to enjoy the luxury of dry clothes. I came back wet through every day, but having warm and dry clothes ready to change into, suffered no ill effects other than the discomfort of smoke-varnished garments; and to that I quickly grew accustomed.

My men lived alongside in an ample shed, open to the river in front, with a high, steep roof which came right down to the ground behind.

Throughout the months I lived here, or in my several camps higher up the valley, the daily programme was much the same. I rose at, or before, daylight, and had a cup of tea and two chappatties. Then, while the staff were breakfasting, I worked on my plants and field notes, or whatever work there was left over from the previous day. About nine, I breakfasted, and at ten started out on the day's exploration, getting back about three. Then I changed, had tea, and settled down to a couple of hours' work on the collection. At seven, I dined in solitary state, and passed the evening writing my diary and reading; it was rarely that by ten o'clock I was not quite ready for bed.

The first day after arriving at the base (Fig. 97) I turned my attention to the mountains which hemmed us in on every side. Around the Tibetan settlement was a strip of permanent meadow, just above the river, and above that again were steep, cultivated slopes. But this tiny clearance was but a reef in the vast and towering ocean of forest which surged over the pathless mountains. A single track led up the valley to the alpine pastures below the Diphuk La; but my immediate concern was to scale the mountainous ridges which frowned down on my camp. After several unsuccessful attempts, I did succeed with one of my men in blazing a trail up through the temperate rain forest to a razor-backed ridge, 3,000 feet above the torrent, and in the course of this ascent, I was able to form a good idea of the forest flora.

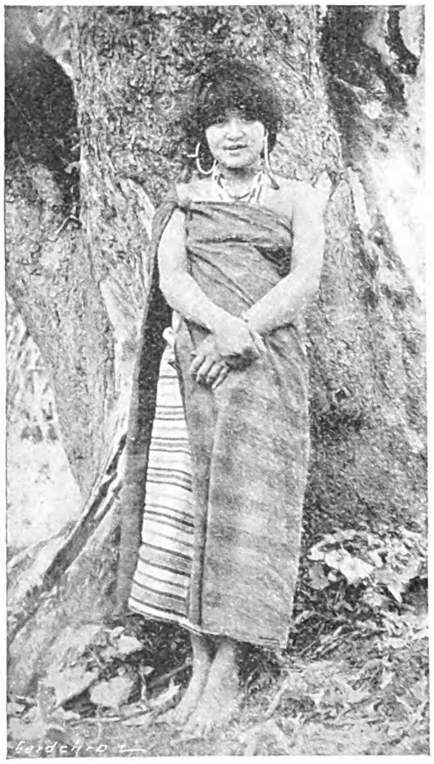


FIG. 95.—A NUNG GIRL OF THE LOWER SEINGHKU.

The face by which we ascended was very steep, sloping to begin with at an average angle of about 50°, but towards the crest the slope increased to about 65°. Down below, the forest was extraordinarily open, almost the only undergrowth being a formidable species of Bamboo, armed with a cheval-de-frise of frightful spikes at each node. Coming swiftly down the hill one would grab hold of a Bamboo haulm to stay oneself, and rip one's hand open on these dreadful claws.

The trees were, mostly, a species of Gordonia or Schima, Rhododendron Mackenzianum (Fig. 94), species of Oak, Myrtus and certain Araliaceae. A little higher up at about 7,000-8,000 feet, one came into forests of immense-leaved trees, the two most notable being a 'Grande' Rhododendron, which was almost certainly R. giganteum, and a huge Magnolia, M. rostrata. Neither was in flower—April is probably their flowering period, or even earlier, so I was at least a month late. R. giganteum is a splendid tree, outwardly not unlike R. sino-grande, but bigger. It was abundant on both sides of the valley at 8,000 feet, growing in very open forests with Magnolias, Illiciums, Oaks, Birch and Schima, young plants—of which I saw plenty coming up in the open forest where there is very little undergrowth—have immense leaves, which do not take on the characteristic silver lining until they are many years old, and over twelve or fifteen feet high. The trusses are of immense size, and I picked up capsules four inches long. The tree grows sixty feet to eighty feet high, with wide, spreading branches, and is overtopped only by the magnificent Magnolia rostrata, which reaches fully ninety feet, and being deciduous, displays its fine limbs in winter. It was very common hereabouts, scattered through the middle zone of the temperate rain forest, and in full bloom must be gorgeous. Its distribution is of botanical interest and significant. This is the species I found in the Tsangpo gorge three years ago—its furthest record to the west. It is recorded from the Mekong-Salween divide, in about the same latitude, to the east, and from as far south as Hpimaw. In Sikkim it is replaced by M. Campbellii. Amongst these big-leaved trees there flourished also a noble Illicium, the trunk of which, towards the base, was curiously wrinkled with transverse parallel puckers. The flowers were small for so big a tree, cream-coloured and fragrant.

A little higher up there was a belt of dwarf Bamboo through which we had to hack our way, and above that the real trouble began, for we found ourselves at the foot of a very steep, broken slope, with immense blocks of stone piled anyhow on each other, and the whole earth-shaking slip overwhelmed beneath so tight a tanglewood that it was impossible to move an inch without first hewing a way through. Here, in desperate strife, shouldering and pushing each other, growing on top of each other, sometimes three deep, panting for air and light, grew an amazing variety of shrubs, epiphytes and stunted trees; and every crevice left over below was tightly packed with dwarf Bamboo, and over all lay a shroud of moss, which hung in weeping festoons from the branches, and covered the rocks as with a green sponge.

Here bloomed a beautiful 'Grande' Rhododendron with ball-like clusters of bright, wintry-sunshine yellow flowers, and a large-leaved 'Barbatum,' something like R. strigillosum, with massive trusses of rose-purple flowers, having a rather pungent, darker flush at the base; but the foliage is handsome and pachydermatous-looking. Here, too, was R. Maddeni not in flower, and spouting out of the cliff crevices, R. megacalyx, just coming into flower. This last is one of the most bewitching of all the 'Maddeni' Rhododendrons, alike in flower and leaf; its firm, milk-white trumpets, with the Daffodil-yellow of summer twilight reflected in its throat, and the delicious dewy fragrance breathed out of its mouth, place it amongst the elect.

Finest of the Rhododendrons here, however, for sheer colour effect, was a small, straggling bush, ragged-leaved, untidy, but breaking out all over in such an eruption of fierce, butter-golden flowers as astonished me. It was one of the 'Campylogynums'; was it indeed R. aureum? Yet I do not think R. aureum has this dazzling effect of hammered gold, seen in K.W. 6751.

Amongst these bushes grew a species of Laurus, smothered under a mist of creamy-white, fluffy flowers; a ruddy-leafed Maple, something like the Japanese A. palmatum, or A. japonicum, Michelia sp., Ilex, Enkianthus, and other tanglesome plants. The Ilex mentioned was particularly handsome, and not at all Holly-like in appearance. It is a small tree, twenty to thirty feet high, irregularly branched almost from the ground, the branches all lying outspread in one plane, with all the interstices filled with the tiny, round, finely-toothed green leaves, also borne in one plane.

---

* The previous articles on Mr. Kingdon Ward's Ninth Expedition in Asia were published in our issues of August 14, 28, October 9 and November 20, 1926, and January 1, February 19, March 5, 1927.

The result is to give a tabular or stratified effect, broken up and overlapping, which is very effective. The leaves are even smaller than, and not so leathery and dull as those of I. crenata, and, of course, the habit is quite different. The leaves recall those of some species of Nothofagus, hence the provisional name, I. nothofagacifolia I have bestowed on this plant. The berries are tiny, but as scarlet as those of our own plant, and when borne in numbers, the effect of these red beads, strewn along the layers of olive-green leaves, is delightful. Ilex nothofagacifolia, then, is a shade-loving, forest tree, requiring plenty of moisture and a rich soil, but indifferent to snow, and wretched, damp cold, such as one gets in the Seinghku valley at 8,000 feet in the winter and early spring; for the snow does not lie here much. But it is not happy. I found dozens of trees, but only three bore flowers, and the seed supply was severely checked. Probably these forests are too dismal for it; the conditions are too wet and dark. The trees were all draped and frilled with moss, hanging from the boughs like seaweed, and this insidious creeping death seemed to clutch at their hearts and paralyse them. It would be happier in more healthy surroundings.

The Enkianthus struck me as another interesting plant with possibilities of garden value. It grows hardly so tall as E. campanulatus, and bears far fewer flowers; but these are of a bright, cherry-red, almost globular, with a small, pursed-up mouth. They hang well clear of the foliage on long, stiffly-arched pedicels, all up the slim stems, and in autumn the blood-red leaves shine out sharply from the evergreen thickets.

On our first climb we failed to reach the crest of the ridge, being badly held up by the tanglewood, through which it took us a long time to hack our way; and having cleared a narrow track we found the face almost precipitous, much scarped and broken, and difficult enough to ascend without the added embarrassment of the tanglewood. On the other hand, without roots and branches by which to haul ourselves up, we might never have scaled the cliffs at all. On our second attempt, however, we finished the path to the razor-backed ridge, and made good progress astride the ridge, half-way to the summit. It was on this occasion that we found the beautiful 'Silver Barberry,' miscalled Holly, a meritorious Cotoneaster, two pretty bush Rhododendrons and various Ericaceae. Of these I shall tell later.

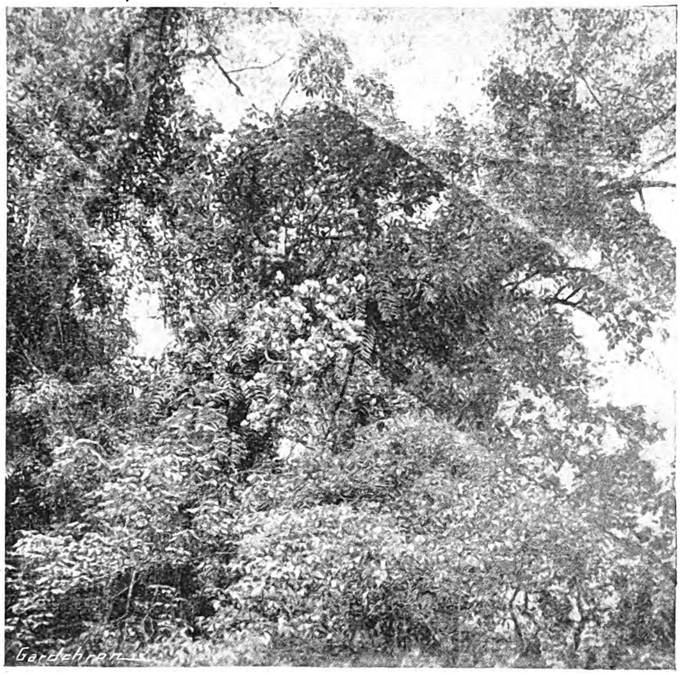


FIG. 96.—EPIPHYTIC FLORA AT 4,000-5,000 FEET; RHODODENDRON DENDRICOLA, WITH RHAPHIDOPHORA, FERNS AND ORCHIDS.

Meanwhile the epiphytic flora (Fig. 96) of the tanglewood deserves a word. It included a Rhododendron of the 'Vaccinioides' type with wee leaves, an 'Edgworthii' with bright-yellow flowers, partial to old Juniper trees, species of Agapetes, and so on; with a profuse tangle of Clematis, Vitis and other climbers. *F. Kingdon Ward.*

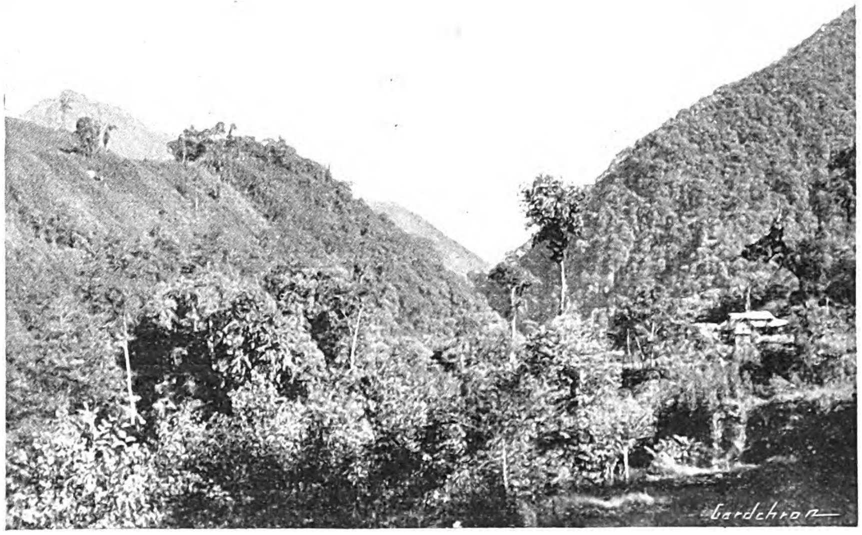


FIG. 97.—VIEW DOWN THE SEINGHKU VALLEY FROM CAPT. KINGDON WARD'S BASE CAMP AT 6,000 FEET.

Forest clearing on left; cultivation in the right foreground.

TREES AND SHRUBS.

ERIOBOTRYA JAPONICA.

THIS conspicuous evergreen shrub from Japan makes an ideal plant for covering walls, or as a bush plant in the open in the milder parts of the country. The leaves, which on good specimens often measure eighteen inches or more in length, are of a beautiful dark green on the surface and downy underneath.

On the long wall bordering the lawns and flower garden at Pyrford Court, the seat of Viscount Elveden, are two fine plants of this Eriobotrya amongst other interesting shrubs. The effect of these plants, with their large, evergreen leaves, during winter, when the other shrubs are bare, is charming and they are equally effective during summer when making their vigorous, young growth.

From the appearance and the splendid yearly growth these plants make, the position chosen for them suits them admirably. Eriobotrya japonica will grow as a bush in the south-eastern area of London, but the plant does not exhibit such clean, vigorous growth as it does under more favourable atmospheric conditions. *F. W. G.*

VIBURNUM FRAGRANS.

THIS is a delightful, early-flowering shrub, originally introduced from China by Purdom, and again by Farrer, who, I believe, is responsible for the plants now growing in this country. It would be interesting to know if this shrub has proved hardy in most parts of this country, because it is such a fine plant and one that should be planted freely.

Here, at Chepstow, there is a specimen some five or six feet in height, and in February it is unequalled for its exquisite flowers, which are delightfully fragrant.

So far, our specimen has not been injured by cold, although we have at times experienced upwards of 18° of frost. In many respects it resembles the well-known V. Carlesii, but with me, V. fragrans is much more upright in growth, and not so spreading as V. Carlesii. It should prove a useful subject for the cool greenhouse, where its beautiful trusses of white flowers would be protected from blemish by wet weather.

This Viburnum is a decided acquisition. *T. W. B.*

LEAF ROT OF THE CARNATION.

A New and Dangerous Disease.

During January we received, through the medium of *The Gardeners' Chronicle*, examples of diseased Carnations grown in the open near Brighton, Sussex, which were suffering from a disease caused by a fungus which was new to us. In the course of correspondence, Dr. G. H. Pethybridge referred us to an account of the disease given in 1921 in the German periodical *Die Gartenwelt.*[*] In this account the authors Dr. G. Höstermann and Dr. R. Laubert, give an excellent description both of the disease and of the fungus concerned. Since the German periodical is absent from the libraries of this country (at any rate as regards London), it will be well to give here a translation of that part of the article which deals with the disease symptoms and other points of practical interest.

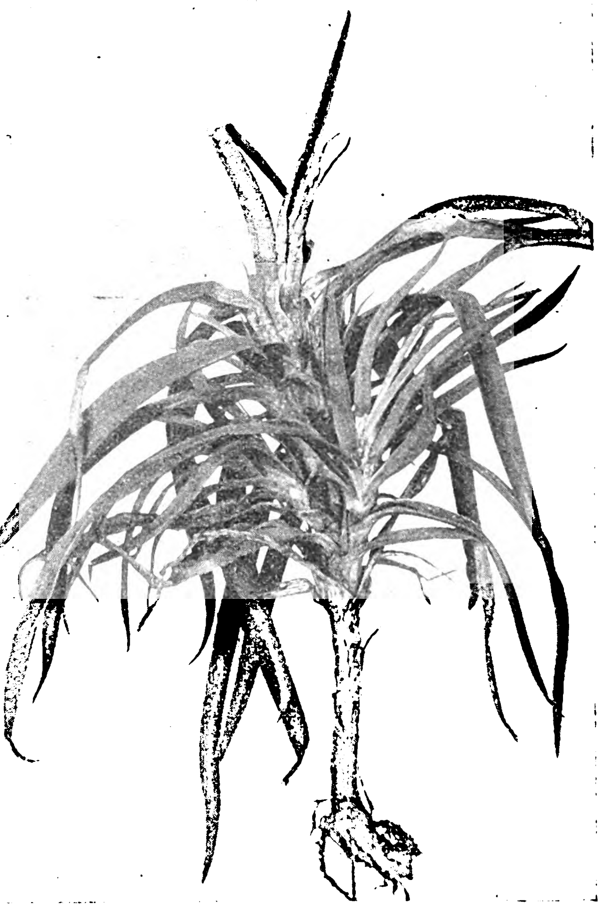


FIG. 98.—LEAF-ROT DISEASE OF CARNATION.

One of four slightly diseased laterals pulled from a plant on February 6, 1927. The latter was raised from a cutting taken in August, 1925. The terminal rosette of leaves is attacked and grey in colour. The bases of leaves on a secondary growth (to the right) are also affected. Half natural size.

The authors entitle their article "A virulent new fungus disease of the Carnation," and state that the leaves of the diseased plants show on both surfaces large discoloured patches which are brown, soft, or when dry, bright whitish-grey, and occur either as transverse bands or extend over the whole terminal part of the leaf. The leaf at the affected places becomes, as the result of the weakening of the tissues, withered and often cracked. Similar discoloured spots occur frequently on the stems, flower stalks, bracts and sepals. Very small, round, rather dark grey, spots are present in large numbers on both sides of the diseased part of the leaf. These spots are for the most part so indistinct that they are hardly recognisable. They become a little more evident if the leaf is held up against the light. They appear then as rather closely grouped circular areas, transparent, and like a spot of grease lying in the leaf, nearly ½-mm. in diameter, with a more or less distinct point in the middle. This point is frequently covered by a tiny, waxy, whitish or yellowish grey, wart-shaped or conical, granule. When the diseased leaves are placed in a "moist chamber," this granule looked at with a lens, is often seen to resemble a longer or shorter tendril-like string of little sausages.

Affected plants have an unhealthy and diseased appearance. A microscopical examination shows that the parenchyma of the diseased places in the leaf is collapsed and permeated by colourless septate hyphae which form in the outer parts of the epidermal cells a thin layer of plectenchyma under the cuticle. From this layer there develops in places a colourless, disc-shaped pustule of conidia of very variable size and up to 0.3mm. in diameter. These pustules of spores burst the cuticle and raise it up so that the split cuticle completely surrounds each pustule of conidia like a collar. From those cells of the pustule which function as conidiophores, the characteristically shaped conidia are abstricted. The conidia are rather variable in shape, oblong, mostly spindle-shaped or obclavate, broadest in the middle or towards the lower end, slightly curved like a sickle or almost straight, thin walled, colourless, contents transparent or more or less vacuolate—granular, mostly 2- to 3- septate, occasionally somewhat constricted at the septum. Typically, the spore gradually tapers at the upper, narrower, end into a long, awl-shaped or thread-like tail, while the opposite, lower, broader end is provided with a shorter, thread-like, appendage which usually is situated not exactly at the end, but is pushed a little towards the concave side of the spore, and in consequence is directed somewhat obliquely sideways. The spores are 3-7μ broad and 12-42μ long; without the appendage and tail, 12-24μ. These are not uncommonly absent, as the spore are very variable. The median cell of the spore is usually 6-7μ long. The spores are capable of germination at once. Inoculation experiments were carried out with spores sown on healthy Carnation plants, and these became infected with the disease.

The fungus is considered as forming a genus new to science, and is named Pseudodiscosia Dianthi. The disease is certainly equal in economic importance to those caused by the attacks of the well-known pests of the Carnation, Rust (Uromyces caryophyllinus), 'Fairy Ring' (Heterosporium echinulatum), etc. It has occurred in various nurseries at Leipzig and elsewhere, and caused serious damage, both on plants in the open and in the house. It is to be concluded that specia conditions are required to enable the disease to thrive and establish itself. A considerable degree of atmospheric humidity and dull weather may be regarded as favouring its development. The susceptibility of different varieties is clearly different. Thus, in one case, in 1920, only a certain new variety (the name of which is not disclosed, in the interests of the raiser), was affected, while other varieties growing contiguous remained healthy. In another case it was the variety Agadir which was the first to be attacked specially, although later other varieties suffered, but not to the same extent. The variety Souvenir de Cannes proved the most resistant.

The authors state further that sufficient experience has not yet been obtained with regard to the control of the disease. The grower will do well, however, to take the correct cultural measures (provision of sufficient light and air, avoidance of stagnant or too high air- and soil-moisture, unsuitable soil and manuring, strict cleanliness, etc.), to strengthen and harden the plants so as to prevent them, as far as possible, from becoming diseased. Where the disease has occurred, all the affected parts of the plant should be cut off and destroyed, and a fungicide (either a spray or dust) should be repeatedly employed on an experimental scale, and perhaps also, in case of necessity, the isolation or destruction of the specially susceptible varieties. According to a communication, the use of sulphur and Bordeaux mixture (1-2 per cent.) was attended with no success. One grower is said to have had a certain measure of success against the infection by spraying with a strong solution of salt.

The following is a description of the disease and the fungus causing it, based on examination of the affected plants from near Brighton. It will be seen that in all essential features the disease symptoms and the characters of the fungus are the same as those described from Germany.

Specimens of the diseased Carnations were received in January of this year from the grower, and a visit was paid to the premises in order to investigate the extent of the damage. Only one kind of Carnation was attacked. This was originally derived from a seedling[*] raised by crossing the variety Mrs. Brazier with the best border varieties. The first cuttings of the original seedling plant were struck in 1914, and the raiser reported that there were no signs of disease till 1922, in which year three or four Old Clove Carnations had been introduced close to the main stock of the variety now diseased. It was noticed that these plants, at the time of introduction, were attacked by a leaf disease. On this account the Clove Carnations were removed after a fortnight and were burnt. The grower stated that a leaf disease then started on the variety now attacked, but since no critical examination of either plant was made at the time, it is not now possible to determine whether the old Clove Carnations can be held responsible. In 1925, nearly the whole stock of 400 to 500 plants (planted in rows at two feet spacing) was destroyed by the grower, after a small supply of cuttings had been taken, owing to the unsightly appearance of the foliage and to the considerable reduction in size and number of blooms.

The affected plants which we were able to examine had been started as cuttings in August, 1925, and, after the following winter, had been planted out. In May, 1926, according to the usual method, the main stem had been cut back and from four to eight strong laterals had grown out as a result of this treatment. The plants were now (February, 1927) about eight inches high, and measured about eighteen inches across. It was noticed that the few plants present of three other varieties were not affected.*

---

[*] Höstermann, G. and Laubert, R.: Eine bösartige neue Pilzkrankheit der Nelke. *Die Gartenwelt*, XXV, p. 65, 1921.

[*] The seed was sown in 1912, and of the numerous seedlings, only four were kept. The susceptible variety was one of these.

Diseased plants are characterised by rotting of the leaves, though the rot does not necessarily affect every leaf on a shoot, and here and there a healthy green leaf may be found amongst those diseased. The rot, which is of a dry or wet nature, according to the state of the weather, most commonly occurs at the bases of leaves where, owing to the weight of the major healthy portion, transverse cracks are caused and lead to drooping and shrivelling of the leaves. If a plant, when dug up, is roughly handled or shaken, a slight fall of leaves takes place. Such leaves are still green but are brown and rotted at the base. Much of the foliage of the growing plants was thus withered; they appeared rusty brown with occasional green leaves projecting from the curling, withered, foliage.

The dishevelled appearance of the normally erect foliage is accentuated by the state of the youngest leaves at the tips of the shoots. These, even while still clasped together and, if dry, are seen to be of an almost pure white colour for a considerable part of their length. When wet, the colour changes to dull grey-brown. As a result of the disease, they may be unable to open (Fig. 98), and if, as sometimes happens, rotting occurs more on one side than on the other at the base of the closed terminal spike, or if uneven growth takes place, on one side only, within the still closed spike, the latter may fall over or become looped and distorted, the young leaves within being still clasped together and unexpanded. The attack on the terminal cluster of youngest leaves may be limited to one or only a few shoots, or it may involve every terminal cluster on the plant and every young lateral arising from the main stems. The difficulty in obtaining healthy young shoots for cuttings at once becomes apparent if the process of infection continues thus into the summer months. The grower informs us that the worst effects of the disease are seen at the end of summer, continuing during autumn and through the winter, after which the new growth becomes infected.

In no case were we able to find that the stems were attacked. Whole shoots when cut longitudinally with a knife, showed that the disease had proceeded no further than the extreme ends of the leaves at the place of their attachment to the stem.

The above account describes the state of the plants as they would appear to the general observer. Closer examination showed that the bases of leaves only recently attacked were marked by grey-brown patches extending all across the lamina and usually fringed at the upper edge with white (Fig. 99). A zone of purple colour lay between the white and the healthy green part of the leaf blade. Such patches might extend from one to four centimetres (1½ inch) up the lamina. Occasionally an isolated patch of similar colour was found to occur about half way up the leaf blade, and in this case it might extend across (Fig. 99) or only part way. If it completely traversed the leaf blade, the white and purple zones occurred both above and below the diseased area. The following measurements give some idea of the size of the isolated diseased areas in relation to the leaf. On leaves which measured 1·0cm. in breadth and 12·0cms. in length, there were isolated patches extending up to 2·5cms. in length, with white and purple margins measuring an additional 5·0mm. at either end of the brown patch. The diseased areas are visible on both surfaces of the leaf, and are rather more clearly defined on the lower (ventral) surface. The brown patches are light-coloured when dry, but in wet weather readily become water-soaked and soft, and when in this condition, the epidermis easily parts from the underlying tissue. *E. S. Salmon and W. M. Ware, South-Eastern Agricultural College, Wye, Kent.*

(*To be concluded*).

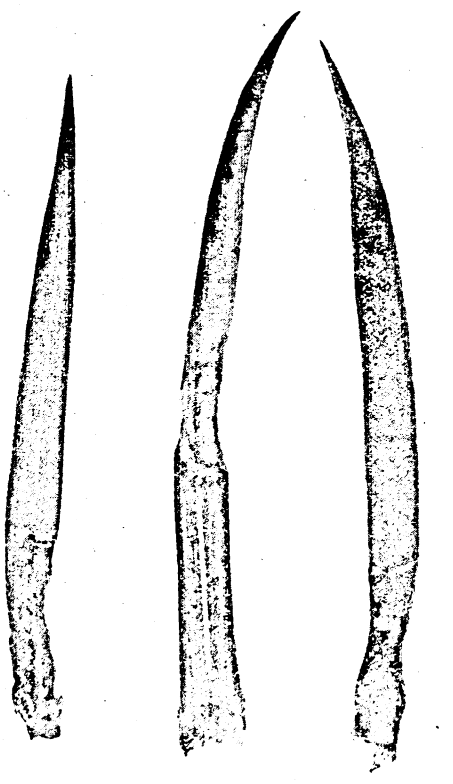


FIG. 99.—LEAF-ROT DISEASE OF CARNATION.

(Left) diseased area at base of the leaf, lower (ventral) surface. (Centre) An isolated area half way up the leaf, lower surface. (Right). At base, upper (dorsal) surface. Three-quarters natural size, February 6, 1927.

LATE PLANTING.

Although the winter has, on the whole, been favourable to the planting of fruit trees, ornamental trees and shrubs, much still remains to be done, as the difficulties of doing this work at the proper time are many and there are sure to be some arrears. It is generally agreed that the best planting season is from the middle of October to the end of November, and on some soils planting may be continued with success until the end of March, but for most soils late October and November planting is by far the best.

Amateurs especially should avoid planting on wet and pasty ground during December and January, but in free-working soils even these months may be chosen, provided there is no stagnant water near the surface and the weather is favourable.

The preparation of the soil is as important as the time of planting, and the planter should first see that the ground is well-drained; where the land approaches to pure clay it is best to remove it and substitute richer, finer soil. Almost any kind of soil resting on a dry sub-soil may be made suitable for fruit trees and shrubs by a liberal addition of loam, leaf-mould, sand, road scrapings and garden refuse.

Other important points in planting are to make the hole large enough to break up the soil at the base of the hole and, if the roots are of a spreading nature, to shorten them as much as is necessary with a sharp knife from below. All injured roots should be cut off to a sound part, and those growing directly downwards shortened to six or eight inches. It is equally important on heavy, wet soils to plant well above the ground level, especially in the case of fruit trees. Never plant too deeply, rather err at the other extreme, but it is also possible to have the roots too near the surface for the welfare of the trees. The nature of the roots, whether fibrous or not, much more than their place in the ground, determines their measure of useful work, and they should be laid out accordingly, so as to run little or no risk of them exhausting the supplies of food and moisture in a dry season. It is not advisable to mix manure in the soil when planting hard-wooded subjects, except for some shrubs and trees when the soil is very poor. A thin surface mulch applied at planting time in late spring is far more beneficial to the trees. Particular attention should be paid to staking freshly transplanted, large trees to prevent them being swayed to and fro by strong winds, as the roots often suffer serious damage from this cause alone.

Late spring planting has some advantages and is the best time for many evergreens. Hollies, for example, should be transplanted just before growth commences, when large trees may be moved with safety. It need hardly be said that a certain amount of care is needed to remove large trees; if they can be prepared one year in advance by cutting back the strongest roots so much the better, and as large a ball of soil and roots as possible should be taken up and replanted without loss of time. Other conditions essential to the success of late spring planting are to keep the plants for as short a time as possible out of the ground, so that the roots may not become dry; to give the roots abundant supplies of water, and to apply a mulch to prevent undue evaporation of soil moisture. Syringing the trees in the evenings of dry days until they become established is also an advantage. It has been frequently shown that trees and shrubs may be transplanted successfully at almost any season of the year.

Apples and other fruit trees may be planted up to May, but they will do best if planted in the next few weeks. No difficulties need be experienced in the late planting of smaller trees and shrubs that have been regularly transplanted. Since the introduction of so many new Rhododendrons and other half-hardy choice trees and shrubs, late spring planting has been carried out with the greatest success. The depth at which to plant should be governed by the ground mark on the stem; to plant higher injuriously checks growth, and to plant lower invites disease. When the roots are brought nearer to the surface it is of the utmost importance that they should be protected by a covering of stable litter or similar material to counteract the evil effects of a dry period in spring and early summer. *F. Jordan.*

DISEASES OF LILIES.

(*Concluded from p.* 179).

Experience has shown that the first of Massee's suggestions has little practical value, for Botrytis is primarily a disease of leaf and stem; if neglected it will ultimately reach the bulb through the stem, but not, ordinarily, through the ground, for the mycelium does not lie deeply near the bulb, but in the surface soil. Careful cultivators naturally surround Lily bulbs with sand, but, for the reason given, that is no safeguard against Botrytis. In theory, Massee's further suggestion that the top soil should be skimmed off every autumn after Lilies have flowered and fruited is sound, but in practice it is hardly feasible where Lilies are grown on more than a most modest scale. Where they are interplanted—as they should be—with other subjects, it is not possible to remove all the surface soil; much of it must remain, to harbour mycelium. The ideal medium would be some liquid, with which every particle of suspected ground can be saturated, and which, while destroying the mycelium shall not injure plants or bulbs. The situation as presented to cultivators is analogous to that confronting medical science in its search for a bactericide which shall render bacteria in the human body innocuous without damaging the tissues whereon or wherein they shelter.

As a remedy for Botrytis, Massee proposed spraying the foliage of infected plants with a solution prepared by dissolving two ounces of potassium sulphide in three gallons of water, and that, or spraying with Bordeaux mixture, remains the gardener's stand-by. If the disease has not gone very far the remedy is usually efficacious, but there are times, and they have been too numerous in the south of late years, when Botrytis is beyond human control; when it comes in an irresistible wave carrying all before it, and constitution and cultivation count for nought. It may come, too, like a thief in the night, as when the writer himself saw a field of L. umbellatum in remarkably healthy condition, irretrievably ruined in a *single night* of chill Atlantic fog in June, almost every leaf on every plant of hundreds hanging limp on its stem next morning.

---

* One of these was a seven-years-old hybrid of the same female parentage as the susceptible variety.

Botrytis cinerea will only flourish in dull, damp weather, and for reasons which Ward made clear. To understand its method of attack, we may assume, as, indeed, we are entitled to nowadays, that the mycelium is almost universally present in the crust of the ground in gardens, having germinated there from spores which fall from the diseased foliage of many plant genera. As a saprophyte as well as a parasite the mycelium is found on heaps of decaying vegetable matter, leaf-mould and the like. In winter the mycelium is dormant, but in spring and onwards till the winter again, it is active, and produces a crop of spores. A puff of wind, a stirring of the ground by a bird, or by spade, fork or trowel, and the spores, invisible to the naked eye, are floating in the air; they alight, possibly in clouds, on the leaves of a Lily, and if the leaves are dry are innocuous. If, however, they are wet, the spores, to fulfil their function of fastening parasitically on a leaf, excrete a ferment which softens the walls of the cells in the skin of the leaf and enables the microscopical thread-like filaments, or hyphae, as mycologists call them, to feed on the substance of the cells. "This ferment . . . . . . requires water if for no other purpose than to enable it to diffuse, but also because the more watery the cellulose the more easily is it dissolved." Having pierced the softened cuticle, the fungus begins its deadly work of invading the tissues of the leaf; at first it is a mere freckle, but after a week of weather favourable to the fungus the affected area may have enlarged to the size of a sixpence, orange in colour and with a black speck in the centre; gradually patches of grey mould spread outwards from these orange-coloured markings, and in a fortnight or less from the moment of infection the whole leaf or bud may be a rotting mass. If one or two leaves or flower buds only are attacked, they may be removed and no further harm will be done, but that happy state of things is rare. Usually many leaves are stricken and in an epidemic every leaf will be covered with the parasitic fungus. Whether the original attack is mild or serious, if the appropriate remedy is neglected, the end is the same, provided the weather conditions are favourable to the fungus; the whole plant becomes involved and eventually the stem collapses. The fungus is now on the way down the stem to the bulb, which it ultimately reaches, and then, like the rest of the plant, the bulb is reduced to a sorry mass of slimy, rotting scales. All the time the neighbouring ground and plants are being fouled by clouds of spores from the stricken stems and leaves, and these spores in turn will pursue their deadly functions.

If, however, before the plant is irretrievably involved, wet or damp weather gives place to a hot, sunny spell, the progress of the fungus will be arrested, the orange-coloured markings become dry, leathery patches, and though the plant may be crippled, that may escape all but the expert eye. The year 1925 furnished a typical example of the power of sunshine over Botrytis. In the south the weather of the first half of the year was consistently chilly and dull, almost up to midsummer, and Botrytis was rampant. Then followed a month of roasting sun, and the effect on the fungus was miraculous, for the progress of the disease was completely stayed, as if by magic. Plants which had been attacked and were not too far gone, recovered in remarkable fashion, and though scarred, threw off all active signs of the disease and flowered well. According to Marshall Ward, intense sunshine and high temperature mean "rapid transpiration and energetic assimilation processes by which hard, thick cellulose walls are produced. The cuticle is also well developed, thick, clean and continuous under such conditions; and growth is steady, there being no superabundance of water, the light being bright." Happily, in the sun, Nature herself provides what at present seems the only preventive and remedy for epidemic Botrytis, and as cultivators of the genus know, in a sunny season the fungus gives little, if any, trouble. The explanation advanced for this is that the spores cannot exercise their excretory function in the absence of moisture on the leaf; but experiments made by the writer in the hot summer of 1921 seem to show that even if the foliage of Lilies is kept permanently moist in a cloud of vapour during sunny weather, it is still not affected by the fungus. It seems possible that the rays of the sun itself may have a sterilising effect on the fungus; on the other hand, the temperature factor may have some bearing on the impotence of Botrytis in hot weather.

Some mycologists hold the view that before a plant will succumb to Botrytis there must be some lowering of its vitality, either by adverse weather conditions, indifferent cultivation or some other factor; others hold that vigorous plants are not attacked. They have only to experience a serious epidemic of the disease, however, to realise that it makes no distinction in its choice of victims; as Marshall Ward and other investigators observed, weak plants and strong alike are attacked, and in an epidemic the writer has noticed that the Lily with possibly the strongest constitution of all—L. Henryi—is as often a victim as not. Even L. giganteum does not always escape.

Just as Ward had completed his exploration of the disease, Kean, who at that time was attached to the Massachusetts Institute of Technology, went to Bermuda to investigate a disease which was devastating the plantations of L. longiflorum in the island, and had not then been identified. It had been first noticed about three years before (1885), and in what we now know to be characteristic fashion, had spread like wildfire till all the plantations were in its grip.

Kean found that the disease began to show itself in the spring of each year, when the days began to grow warm while the nights remained comparatively cool. "The marked difference in the temperature between day and night results in a heavy fall of dew, so that even after the sun is high in the heavens large, cool drops of dew may be found on the leaves of Lilies. A little cool weather, or a few warm, dry nights free from dew will check the activity of the disease, while a warm, damp day will cause it to spread with great rapidity." Kean noticed that plants under the hedges of Oleander by which the fields are surrounded, did not contract the disease to a noticeable degree, and he reasoned that this was because the high, over-hanging hedges collected most of the dew, so that the leaves of neighbouring Lilies were comparatively dry. In the course of his investigations of the disease, Kean showed that it had no bacterial origin, but was due to a fungus, a conclusion previously reached by Ward, who identified specimens sent to him from Bermuda by Kean as identical with the Botrytis, the life history of which he had recently explored. *A. Grove.*

APIARY NOTES.

With the advent of real spring weather, and the intense breeding within the hives, the bee-keeper begins to think of the harvest. It is well he should, for, if success is to be achieved, he must make his preparations well ahead. The nature of the crop he is to work for will materially affect his management henceforward.

One matter, however, is of universal application—the clipping or otherwise of the queen. This is a practice almost universal in large apiaries, if not in this country, at least in America, and in the case of those with out-apiaries to manage, it is almost imperative. The operation consists in gently lifting the queen from the comb and, with a pair of sharp scissors, cutting away part of her wings. It is analogous to cutting the flight feathers of a fowl, and is in no way harmful to the queen, nor is it in the slightest degree painful. To perform the operation some deftness and delicacy are required, but with a very little practice it becomes easy. A nervous bee-keeper may practice on a few drones. Take the insect off the combs by seizing her wings between the thumb and first finger of the right hand, and then transfer her to the left hand finger and thumb, but this time gripping her firmly, yet gently, by the sides of the thorax, *i.e.*, the part of the body from which the wings spring. Do not, on any account, grip her by the abdomen, Then, the wings being uppermost, snip off about half or two-thirds of both wings, and carefully set her down on the comb again. Do not drop her! Remember that her abdomen is full of delicate eggs, and the least pressure, or fall, may ruin her fertility. Be most careful, also, not to cut her long, strong legs—a thing easy to do, for they always seem to be in the way during the operation. The merit of clipping is simply this: that, when a swarm issues, the queen, attempting to fly, is unable to do so. The result is, that after clustering for a while, the bees find the queen is not with them, and come pouring back to the hive. The sight is ludicrous! They seem to me conscious April fools as they come tumbling back into the hive. If the owner is there when the swarming occurs, all he has to do is to pick the queen up from the ground and take steps to prevent further swarming; and if he is not there, whilst the queen is lost, the swarm is not. By clipping, and examination of the combs for queen cells every eight or nine days during the swarming season, it is possible for a bee-keeper who is away from home all day, to avoid the loss of a single bee through the swarming season. Those always about their hives will not find the practice so valuable, but even they may be saved many awkward climbs after swarms if they clip, and then, after catching the queen on the grass, artificially swarm the stock. The whole secret lies in the fact that no swarm ever goes away without a queen. Swarming much depends, however, on the character of the crop desired. If extracted honey is sought for, then swarming may never occur. Plenty of room to store and space for the bees to cluster will do a lot to obviate it. But, if sections are to be the crop, swarming is hard to avoid. I always think of our section stocks (and we work about three hundred each season for sections alone) as so many guns at full cock. The slightest error, and off goes the gun, and good-bye to crop and all. There is no question that obtaining sections is skilled work. Remember that a crowded hive is essential, and a crowded hive is the very essence of swarming. So the difficulty is to load the gun to the barrel mouth, and yet prevent it exploding. But, if sections are wanted, that gun must be rammed down, and double-rammed. Yet the fact that we sold over five thousand sections last year proves that it can be done—and only a few of our guns exploded!

Having decided on sections, another point of importance is, which kind of sections, for there are, broadly, two kinds—Bee-way and No Bee-way. The former requires tin separators, the latter fence separators. After a wide experience of both, I do not consider there is any comparison in efficiency. Fence separators and No Bee-way sections are infinitely the better. Whether the size be 5×4 or 4¼×4¼, the fence separator gives amazingly the better product. The bees enter the sections with less reluctance, they work more efficiently, and they finish the sections right down to the bottom. Tin separators are cold and disliked by the bees; by conduction they waste heat, and by separation prevent its generation by the groups of workers. Fence separators, being made of wood, conserve the heat, and by the lattice-like construction allow all the bees in the super to share the task of generating warmth.

Another great difference in sections is the way they are cut to receive the foundation. Without enumerating them all, I may state that, for ease in preparing them for the crates, the three-side cut is the only one worth consideration. By using these sheets of foundation the full width of the crate may be slipped into as many sections

—three or four as the case may be—as are required, and in one operation. Then, when the crate is filled, the foundation is held firmly without any buckling, or breaking down, and no other fixing is required. We fill crates of thirty-six sections in six to seven minutes. Compare this method with the time required to cut foundation into separate pieces, fit each section with its separate piece, and then, put each section separately into its crate. Often when the work is done half the pieces of foundation are not perpendicular.

Yet, such is the condition of bee-keeping in this country, that neither fence separators, No Bee-way sections, nor the clipping of queens is general in England. They are the exception. But commerce is a hard taskmistress; yet is she a wise one; for efficiency is her goal, and by efficiency men learn the right. *John Mavie.*

MARKET FRUIT GARDEN.

With a total of 3·37 inches of rain, February had well over an inch above the average precipitation. This caused little interruption to outdoor work, however, as most of the rain fell at night. This has been characteristic of the winter months, with the pleasing result that less than the usual amount of time has been practically wasted on made-up jobs under cover. Although the weather has not always allowed one to do just the work desired, by choosing the job to suit the conditions, good progress has been made; and blossoming time should find few arrears of work if it does not come too early. Winter spraying was finished on my place soon after the middle of the month, every Plum and Apple having received its application of tar-distillate wash. It is fortunate that an early start was made with this work, as the buds of all kinds of fruit trees and bushes were distinctly on the move at the end of February. Those of Apple Beauty of Bath had, in fact, almost reached the "delayed dormant" stage, whilst Gooseberries and Black Currants were showing a little green leaf. It can already be seen that there will be a very full display of Apple blossom, as was almost certain after last year's crop failure combined with a summer of medium rainfall and fair amount of sunshine. It is to be hoped that the buds may yet be held in check by cool weather, so that they may have a good chance of opening in favourable conditions.

Pruning Old Trees.

The shaping of young trees is work which I always do myself; but, during the past winter, I have undertaken more pruning amongst the older trees than I have done for many years. This work is of absorbing interest. There is much satisfaction in tackling a big tree and at the end of half an hour or more, noting its improved appearance. Incidentally, this is really the only way to learn the true condition of such trees. I thought I could tell this by mere inspection, and dictate the required treatment to the pruners. On taking a hand in the pruning myself, however, I find that my estimate is not always correct. It is easy to gain the impression that the trees are more vigorous than they actually are. I am really tackling a problem that is new to me. For many years the main object in pruning has been to steady down growth and induce the formation of fruit spurs. This is easy, as it is a mere matter of reducing pruning to a minimum. Now many of the trees are full of fruit spurs, and I am anxious to keep them growing. More severe pruning is the obvious course; but it is not always easy to do it in such a way as to ensure a response. Where a branch carries a fair length of last season's shoots, it is obvious that the right thing to do is to prune those shoots fairly hard. But, in the case of some varieties, many of the branches have become covered with fruit spurs, and show little or no annual growth. These I am treating by reducing the size of the spur clusters, and heading back into the old wood wherever a dormant wood-bud is to be found. In addition, the growing points so formed are cleared of fruit spurs for a distance of about six inches. In this way, and with the further help of manure, I hope to force some growth.

Stocks for Apples.

Most of my trees were planted long before the East Malling Research Station made available the information about stocks, which should be of great value to present-day planters, if they are wise enough to take advantage of it. It is amusing to turn up the old Field Book and see what stocks my trees are supposed to be on. Some, for instance, are recorded as being on Crab and others on the free stock, as though there were any difference. Similarly, some are described as being on Paradise and others on Doucin, which, in most cases, means that they are really on one and the same stock, since the Paradise of most nurserymen is Doucin. I remember that we went to some trouble to buy Doucin stocks from the Continent, under the impression that they would give a result somewhere between Paradise and Crab with regard to vigour and size of tree. Fortunately, a good many of these Doucin stocks were used to work Bramley's Seedling on; and the trees have proved to be moderate in size and satisfactory as to cropping. For some other varieties this stock has not given me good results, not being vigorous enough for my conditions. Moreover, the trees need staking for a very long time in exposed positions, owing to their poor root-hold, and they are liable to leaf-scorch. As we now know, it is a stock for good garden conditions or for semi-permanent orchard "fillers" rather than for permanent trees in a commercial plantation.

Most of my trees are on the free or seedling stock, and, apart from the uneven result which this is bound to give, I have no reason to be dissatisfied. If I were planting again, however, I should endeavour to get trees on broad-leaved English Paradise (Malling Type 1). Some of the best of my old trees are, I believe, on this stock, and some which I have planted more recently I know are. It is vigorous enough, with most varieties, to give a fairly big tree on a three-foot stem, which is what I want.

I mentioned above that present-day planters have the advantage of being able to buy trees on the East Malling stocks. They must, however, be prepared to go to some trouble to obtain them. Unfortunately, most nurserymen still offer to market growers Apples described as being simply on Crab and Paradise stocks. The former are, I understand, seedlings raised from the pips of cider Apples. With regard to the Paradise, it is necessary to find out which type of Paradise the particular nurseryman uses. In most cases it is Doucin (Malling Type II), commonly known in the trade as English Paradise. A few nurseries, however, supply trees on broad-leaved English Paradise (Malling Type I); and others have a limited but increasing number of trees on several of the East Malling stocks. There is a very strong demand amongst market growers for dessert Apples on Jaune de Metz (Type IX), the most dwarfing of the Malling selections. This is not to be wondered at, considering how attractive these little trees are as purely temporary "fillers" on good soil. They would seem to be ideal, too, for planting in gardens, where they can be given good treatment. These trees can be planted nine or ten feet apart; they come into bearing very quickly and the fruit is of large size and splendid appearance. Owing to their light anchorage, they need to be permanently staked; and the branches must be supported in good seasons owing to the weight of the abundant crop. A tall stake set up through the middle of the tree serves both purposes, as the branches can be slung up to this when necessary.

The advantage to the grower in planting trees worked on the East Malling stocks is that he should secure a uniform lot of trees which can be relied on to fill a given space and to come into bearing within a certain time. He needs to get them from a good source, however, as only reliable nurserymen either raise the stocks from their own stool-beds or do the necessary rogueing amongst stocks obtained from the Continent.

Spraying in America.

The February issue of *The American Fruit Grower* contains a number of spraying schedules recommended for different districts by their local experiment stations. These must be a valuable help to growers. The schedules are interesting because they show what washes are being used in America at the present time. Lime-sulphur is first favourite as a preventive of Apple scab, Bordeaux mixture appearing far less often in the schedules for this crop. The choice is, no doubt, influenced by the fact that lime-sulphur is useful also against the scale insects which are a serious pest in America. The number of applications recommended is astounding. In New York State, for instance, lime-sulphur at winter strength is to be applied at the delayed dormant stage, followed by two more applications at summer strength between that and the opening of the bloom. After blooming lime-sulphur is used again when the last petals are falling; and the number of still later sprayings is determined by weather conditions. Evidently, if they secure a crop free from scab, they thoroughly deserve it.

For the control of aphides nicotine sulphate is added to the lime-sulphur at one of the pre-blossom applications; and lead arsenate is added at each spraying given after blooming for the control of caterpillars. The Americans do not appear to have discovered the tar distillate washes; but they are enthusiastic about miscible oil or lubricating oil emulsion washes for the control of aphides and San Jose scale. One, at least, of these miscible oil washes is now obtainable in this country, and will, no doubt, be tried by a good many growers this year. The best time to use it appears to be at the pink bud stage or shortly before, when most of the aphides, suckers, and caterpillars have just hatched. It serves, in fact, as a substitute for nicotine, and is cheaper. In one trial at Long Ashton oil emulsion gave a promising result against capsid bug; but at present this wash cannot be recommended on anything more than an experimental scale. The vendors make much of the fact that it softens the bark and invigorates the tree; but does the bark want softening? Americans, on the other hand, seem to be rather nervous as to the effect of the oil on the tree if used repeatedly. I understand, however, that miscible oil washes have long been employed in Australia. A Tasmanian grower who came to see me some years ago spoke highly of them, and was surprised that we did not use them in this country. *Market Grower.*

VEGETABLE GARDEN.

BEANS.

The various kinds of Beans will furnish a supply of pods from early June, when the earliest Broad Beans are fit for use, to well into autumn, or until Runner Beans are destroyed by frost.

The Broad Bean is easily grown and not particular as to soil, but does best in ground which is moderately heavy. It is a fairly hardy plant and the seeds may be sown during November on some soils with a certain measure of success. This sowing may be followed by one made about the end of January or early February, and later at intervals until May, although such late sowings are seldom practised. For an early supply, and in those districts where soil conditions are not favourable to early sowing in the open, plants may be raised under glass in the beginning of the year and transplanted out-of-doors about the first week in March. The seeds may be sown in single rows made two feet apart, allowing ten inches between the seeds, or in double rows one foot apart and three feet between each double row alternating the seeds at twelve inches in the rows. All Beans transplant exceptionally well, and it is advisable to sow a few extra seeds with a view to replacing any that may fail to grow. Frequent hoeings and a sharp watch for pests must be maintained. Should weevils attack the plants, spray them immediately with arsenate of lead. A more serious pest is the Bean aphis which should be dealt with so soon as it appears by spraying with nicotine and soft-soap. The topping of the plants when they have reached a fair height will do much to check this pest, and it also assists the pods to fill.

When Broad Bean plants have made a certain amount of growth they afford some protection to other plants of a less hardy nature, which are often grown as an intercrop.

Although it is possible to produce Broad Beans under glass it is not done to any great extent as it has a serious rival in the more popular French Bean. Broad Beans are roughly divided into three groups: Dwarf Fan-podded, Windsor and Long-pods. It is from the two last that varieties are usually chosen for ordinary cropping. Early White-eyed, Broad Windsor Selected (white-seeded), Giant Green Windsor and Green Harlington are some of the best of the Windsor class. The Longpods are probably looked upon as the most useful type of this vegetable; Champion Longpod, Bunyard's Exhibition (white-seeded), Green Leviathan and Green Giant are all excellent varieties of this type.

The Dwarf French Bean is a useful crop, but is somewhat tender and cannot be sown with safety in the open until the end of April, even in favoured localities. The plant is partial to a fairly rich, light soil, and a sunny position. Successional sowings may be made in the open until early July, except in cold districts, where the sowing period is not so extended. Here, again, the method of sowing may be performed either in single rows made about eighteen inches apart, allowing eight inches to ten inches from plant to plant, or in double lines a foot apart alternating the plants at ten or twelve inches and allowing two-and-a-half feet between the sets of double rows. This crop usually gives little trouble, but frequent hoeings are essential.

Picking generally commences about ten or twelve weeks after sowing, and to prolong the season it is important to keep the plants picked over frequently, never allowing the pods to get old. To produce a continuous supply of pods, fresh sowings should be made at intervals and in various places. To follow those grown entirely in the open a sowing should be made towards the end of July, either in the open with a view to covering the plants when this becomes necessary, on in frames, with the lights removed until the weather necessitates their use. A further sowing under similar conditions should be made in about three weeks' time. About the middle of September, and again a few weeks later, sow in pits which can be heated in cold weather. From November to February periodical sowings may be made in pots under glass, where a temperature of 60° to 65° F. can be maintained, using a light, rich compost. When the plants are growing freely it will be necessary to give them some sort of support, Birch twigs being useful for the purpose. A fairly moist atmosphere should be maintained by syringing whenever the weather is favourable, to prevent red spider infesting the plants. If desirable, these Beans may be grown in heated pits, frames or hot-beds, to continue the succession. A sowing made in a cold frame early in April, the plants being transplanted later to the open when all danger of frost is past, will complete the cycle.

There are large numbers of good varieties of this Bean to choose from, although many which are alike, or similar, have different names. There is a great variation in the colour of the seeds of the various varieties.

For early sowing choose Fifty Days or Early Fortyfold, followed by a selection from the following varieties: Masterpiece, Bounteous and Superlative. A good stock of Canadian Wonder is indispensable for certain districts; and King of the Wax is an exceptionally good dwarf Waxpod. For forcing purposes Early Favourite, Osborne's Forcing and Masterpiece may be recommended. The climbing form of this Bean may be grown in the same manner as the Runner Bean, but is not so robust and does not require so much space. Tender and True, July, and Phenoméne are varieties of merit of this type; Golden Butter is one of the best of the climbing Waxpods.

The Runner Bean is rather more tender than the French Bean and should not be sown in the open before the early days of May. A second sowing may be made early in June and another towards the end of that month. For a continuous supply it is not necessary to make many sowings, as the crop from one batch extends over a considerable period. Any good garden soil is suited to this plant, but it prefers ground on the light side which has been deeply cultivated and is in good heart. A little shade from the mid-day sun is an advantage. Two distinct methods can be adopted for growing this vegetable; one is to sow in rows or specially prepared trenches, alternating the plants about ten inches or twelve inches apart. A minimum distance of seven feet should be allowed between the rows. An excellent plan is to place the rows at even a greater distance, and intercrop with some other vegetable. Various methods are employed for supporting Runner Beans, but whatever is adopted, attention must be paid to the training of the young growths during their early stages, and when they have reached the top of the supports they should be stopped. The other method is to treat the crop as is the custom in market gardens, sowing in drills three feet apart, and, so soon as the plants begin to turn they should be pinched, repeating the operation as often as the growths are developed, which does away with the necessity of supports. Good crops are produced by this system, but the disadvantage is that the pods are often gritty.

Disappointment is sometimes caused by the Beans failing to set during the early stages of growth, especially during dry weather. Syringing the plants in the early mornings will do much to obviate this; when the lower pods begin to form little further trouble will be experienced.

Progress has been very marked in the improvement of varieties, which vary in length and width of pod. Where only medium-sized pods are desired, Scarlet Emperor should prove useful. Prizewinner or Best of All will furnish pods of large size. Czar is one of the best of the white-seeded varieties, and Hollington Dwarf a good variety when the pinching method is adopted. *J. Wilson, Wisley.*

STACHYS TUBERIFERA.

Chinese Artichokes, if still in the bed, should now be lifted and stored in sand for use as required.

Good tubers should be selected and planted in a well-prepared, warm border, enriched with leaf-mould, for this vegetable revels in a loose root-run. The tubers should be planted in rows, fifteen inches apart, and about eight inches between the sets in the rows. *H. H.*

FRUIT GARDEN.

BIENNIAL CROPPING OF APPLES.

On p. 166, *Market Grower* refers to American Apple growers using nitrate of soda two or three weeks before the trees flower to counteract biennial cropping; and that, incidentally, it gave them a better set of fruit.

Had he said a dressing of potash and phosphatic manures I might have agreed with him, but not nitrate of soda—which, if applied on a grass orchard, only encourages a lot of coarse, rank grass, which no animal will eat. Grass should be kept closely cropped under Apple trees so far as possible. I know it cannot be done when the fruits are nearly ripe, but so soon as the trees are cleared it must be eaten down. I have had to have it cut with a scythe to prevent injury to the trees when nitrogenous manures were used, which is not so good for the trees or the land, as when it is eaten off by stock.

The climatic conditions are totally different in England, and what may give good results in America might have the opposite effect here.

If grass orchards were dressed with potash and phosphates for a few years, one would not see the great areas of Buttercups and Plantains usually seen in English orchards and meadows. The result would be finer grass and better Apples. *Grigor Roy, Stoke D'Abernon Manor, Cobham, Surrey.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents

Deep Trenching.—*E. D.* has asked for readers' views on deep trenching. We have always given as much time as possible to ordinary bastard trenching, but one year we followed Mr. Beckett's method of bringing the subsoil to the top, and planted it the following spring with Potatos. The result was a tremendous crop with enormous-sized and grotesque tubers—utterly misshapen and quite unsaleable. Could Mr. Beckett throw any light on the subject? *E. Heathcote, The Eastfield Marais, Williton, Somerset.*

——The deep trenching which Mr. Beckett advocates and practices with such splendid results (p. 135) may mean disappointment to some of the younger men, as I am afraid many of them are great copyists. By this I mean, they merely copy what they read or other men do, quite forgetting that rarely do two men obtain equal results in the same way. Before trenching, drainage has to be considered to carry off superfluous water easily and in reasonable time, or the soil will become sour and acid. After trenching, the lime content of the soil should be ascertained, for if the soil is alkaline, the best results cannot be obtained, neither will the produce be as good for food. A dressing of ground lime helps to break up the soil, and renders the various plant foods available. Failing the means or time to trench at all, growing Celery in rotation all over the garden is a good substitute, as by taking out the trench three or four spits deep, we bring a portion of the bottom on top, and the extra depth of trench may be filled with any clean garden refuse. When earthing the Celery for blanching the intervening space is broken up, and the next time Celery is occupying the same site, arrange the trench midway between the previous trenches. Grow as much Celery as convenient for use from September to May, as doctors tell us this vegetable prevents rheumatism. Some years ago, when trenching a new kitchen garden three and four spits deep, bringing the bottom soil to the top, I found the small seeds took a long time to germinate, and the subsequent growth was slow. Another thing I noticed was that when some of the bottom layer was turned in, it remained rough for four years, thereby draining the soil far too much; the lower spit of soil should be pulverised. As to the back-aching part of the work, no man of average health and strength need fear this, if he knows how to handle a spade or fork. The proper use of these tools should make all the muscles supple, and if it makes one tired then health and appetite are improved. Mr. Beckett tells us that by deep trenching we may increase production by seventy-five per cent; that is we turn one shilling into one-shilling-and-ninepence. *J. E.*

Subscriptions to the Royal Caledonian Horticultural Society.—My attention has been directed to the report of the Annual General Meeting of this Society published in your issue of 29th ult., which states that the Council, having regard to the financial position and the fact that the 5s. membership involved a loss to the Society, proposed to increase the annual subscription to 7s. 6d. This is not quite correct. What the Council's Report stated was that according to the Bye-laws of the Society, the 5s. membership subscription is "available for gardeners and nursery or horticultural employees only," but that a number of members who pay 5s. subscriptions do not come within that description. The Council, accordingly, was considering increasing to 7s. 6d. the annual subscription of members on the 5s. list who are not gardeners or nursery or horticultural employees, but there was no suggestion that members eligible under the terms of the Society's bye-laws should be asked to pay more than 5s. The terms of subscription are £1 1s., 10s. 6d. and 5s., the last being for "gardener" members only. *Donald Mackenzie. Secretary, R.C.H.S.*

SOCIETIES.

GLASGOW SPRING SHOW.

The exhibition of spring flowers promoted by Messrs. Austin and McAslan was held in the McLellan Galleries from March 2 to March 4, and was largely patronised by the general public and Scottish horticulturists. Two halls were required to accommodate the exhibits, and the display reflected an encouraging advance on that of last year, both as regards the variety of the subjects and the quality of the blooms.

A prominent feature which contributed to the success of the show was the attractive exhibits staged by private gardeners. Notable in that respect was the large group of Orchids from Mr. R. Paterson's Stamperland collection. It consisted of 120 plants, representing choice examples of Cymbidium, Cypripedium, Dendrobium, Cattleya, Miltonia and Odontoglossum hybrids tastefully arranged by Mr. Merry, Mr. Paterson's gardener. Among the outstanding specimens were Cymbidium Ceres, C. Moira, C. Miranda Golden Oriel, Odontoglossum Orosius, O. Aurola, O. Molly; Dendrobium Wardianum. Miltonia William Pitt, Cypripedium Robert Paterson, C. Lady Leon, C. Boltonii (white), and C. Olympus, var. The Chairman.

A beautiful colour display was provided by Lady Muir, Deanston House, Doune (gr. Mr. William McCarroll). It consisted of seedling Cyclamens, Primula obconica and Begonia Mrs. Peterson, staged in effective groupings with a background of Erlangea tomentosa. The exhibit of Mr. Claud A. Allan, Kilmahew (gr. Mr. F. Dunbar) occupied a space of fourteen feet by six feet, and consisted exclusively of a large collection of Cyclamen seedlings in five- and six-inch pots, which were remarkable for their large size, varied colours of the blooms, and fine foliage. A smaller, but equally interesting group of Cyclamens, was exhibited by Mr. H. Erskine Gordon, Aitkenhead, Cathcart (gr. Mr. N. Shannon).

A stand composed of Primula malacoides, which included a fine specimen of the Courtland Seedling, also Primula obconica, arranged with a setting of Eupatorium odoratum, was put up by Lieut.-Col. Norman Kennedy, Doonholm, Ayr (gr. Mr. John Gowan), and gave variety to the exhibits. Sir John Reid, Ardencraig, Bute (gr. Mr. John Davidson), displayed a representative collection of Daffodils and Tulips numbering twenty-six varieties, while Mrs. Paton, Holmglen, Carmunnock, showed a grand collection of Daffodils in pots of which Tresserve, Bath's Flame, King Alfred, Olympia, Sunrise and Seagull were outstanding varieties. The new Hyacinth Van Tubergen's Scarlet was also prominent in the exhibit.

The only exhibit of Carnations was shown by Sir A. B. Cayzer, Gartmore (gr. Mr. H. B. Matheson). Mr. Walter Currie. Castle Levin, Gourock (gr. Mr. C. Trail), exhibited a seedling Cupressus.

Messrs. Austin and McAslan's half-dozen exhibits were an object lesson in the varied uses of decorative nursery stock. The principal section was a terraced garden with stone frontage which extended across one end of the hall. Hyacinths planted in soil formed the foreground and flanked a central group of Rhododendron Cynthia, while a background of Weeping Pyrus, Laburnum Vossii and Wistaria completed a colour picture the beauty of which was accentuated by a square bed of Tulips and Hyacinths planted in quartered form and edged with turf. Massed groups of Azalea indica and Rhododendrons in variety occupied the central floor space, and the other end of the hall was occupied by a rock garden containing several rare alpines in flower. The background was filled with brilliant drifts of Japanese Azaleas in full bloom, of which the specimens Hinemanyo and Benegira were particularly fine. Immediately in front was a table of established specimens of modern novelties of Saxifraga, Primula and Cupressus. An extensive collection of pot plants was the centre of attraction in the adjoining hall, including well-grown Wistaria, Viburnum Opulus, Weeping Cherries, Laburnum Moseri, Genista, Lilac, Prunus triloba and Forsythia suspensa.

The competitive section of the show consisted of fifty-nine classes. Over two hundred entries were received, and the quality of the blooms was of a very high standard. Mr. Hector Fraser, Paisley, who had thirteen first prizes to his credit, again won the special prize for the best amateur exhibit in the show, with six magnificent bowls consisting of Narcissus Sir Watkin and Van Waveren's Giant, double Tulips, Azaleas, single Tulip Prosperine, miniature Hyacinth Marconi and single Hyacinth La Victoire, the former having twenty-five and the latter seventeen grand blooms. Other principal prize winners were Mr. Claud Jenkins, Cambuslang (eight firsts); Mr. John Russell, Newton Mearns (seven firsts); Mr. Henry Smith, Kilmarnock; Mr. Peter Banchop, Alexandria; Mr. James McLaren, Milngavie; Mr. James Blackstock, Motherwell, and Mr. James McCaw, Crosshill.

In the gardeners' section the three pots of Cyclamen staged by Mr. William McCarroll, Deanston House, were awarded the special prize offered for the best exhibit.

VALE OF EVESHAM ASPARAGUS GROWERS'.

The third annual general meeting of the Vale of Evesham Asparagus Growers' Association was held at Badsey on the 16th ult. In the absence of the President, Mr. C. A. Binyon, J.P., Mr. R. R. Smith presided.

The Secretary, Mr. A. S. Boaler, announced that the research work being conducted by the Long Ashton (Bristol University) Research Station, for the purpose of solving the "sick" land problem, would not entail any expense to the Association, as there was a special Government grant to cover that work. He presented the accounts which showed a credit balance on the general account of £36 16s. 10d.

Mr. C. A. Binyon was unanimously re-elected President and thanked for his services; Sir Julius Sladden, C.C., Mr. James Ashwin, J.P., and Mr. A. Woodall were re-elected Vice-Presidents; and the general Committee, which includes representatives of all the Asparagus-growing villages in the district, was revised. The Secretary, Mr. A. S. Boaler, and the Treasurer, Mr. Ernest Mustoe, were re-elected.

It was decided to devote the profits of this year's show to the Evesham Hospital Extension Fund.

With reference to the "sick" land problem, which is of vital importance to Asparagus growers, who complain that after a few years their land becomes "sick," and will not produce Asparagus in anything like the quantity or quality previously, Mr. T. Wallace, of Long Ashton Research Station explained the experiments being conducted at Bristol. At Long Ashton, he said, Mr. R. M. Nattrass was at work on the disease side of the problem, and had laid down plots of four varieties of Asparagus upon which he was experimenting. He was also trying to find what methods of control (if control could be exercised) he could obtain over the disease known as Rhizoctonia. For this purpose he was experimenting with Carrots, which are also subject to this disease. He also had roots of Asparagus which showed signs of a second fungus—Fusarium, and was looking into this matter with Dr. G. H. Pethybridge, Mycologist to the Board of Agriculture. He (Mr. Wallace) was at work on the nutrition side. He had laid down some plots on Mr. J. Hall's land at Bretforton, on which they were carrying out different methods of treatment, and this year they hoped to follow through the history of the Asparagus bed. He urged the growers to give the Long Ashton authorities every assistance.

Mr. G. C. Maltby, of the Ministry of Agriculture, said that imported Asparagus was improving in quality and packing; there were other districts too, although perhaps not so well-favoured as theirs, where Asparagus was being grown for market, and he urged them to give all the help they could to Mr. Wallace.

READING AND DISTRICT GARDENERS'.

The fortnightly meeting of this Association was held on February 21. The President, Mr. Frank E. Moring, occupied the chair.

Mr. W. G. Fry, a student of the University Gardens, Shinfield, gave a lecture on "Kew Gardens."

In the competition for six spathes of Richardias (Arum Lilies), many splendid exhibits were shown. The first prize was awarded to Mr. A. W. Gower, Calcot Grange Gardens; the second to Mr. F. G. Rabbits, Bulmershe Court Gardens; and the third to Mr. G. Carter, Chazey Hill House Gardens, Mapledurham. Magnificent plants of Primula malacoides were shown by Mr. F. Townsend, gardener to Mr. Leonard Sutton, Hillside, Reading. A First Class Certificate for Cultural Skill and the congratulations of the Association were awarded to this unique and instructive exhibit.

CARDIFF AND DISTRICT GARDENERS'.

At the fortnightly meeting held at the Queen's Hotel, Cardiff, on March 1, Mr. J. Hall presided, and the members, including ladies, had the privilege of listening to an excellent lecture on "Welsh Flora," by Miss E. Vachell. Miss Vachell dealt admirably with the species of wild plants to be found amongst the mountains, sand dunes, and valleys of north and south Wales. She laid stress on the disadvantages and advantages of past and present days, and sadly regretted the annihilation of some rare species by collectors. Her remarks were ably illustrated by lantern slides.

An interesting discussion followed in which Mr. J. T. Smith, Duffryn Gardens, took the leading part, followed by J. Allen Gibbs, Esq., and other members. The lecture was thoroughly enjoyed and many were amazed to know that so many beautiful plants grew wild in Wales.

SPALDING FLOWER SHOW.

The Spalding and District Bulb Growers' Association held its annual show of forced blooms in the Corn Exchange, Spalding, on Saturday, February 26, when there was a very notable display and a good attendance of growers and others. The competitions are open to members of the Association only.

The exhibits of Mr. O. W. D'Alcorn, of Spalding, won the Parsons' Challenge Cup. Consisting chiefly of Daffodils and Tulips, the blooms were advantageously displayed on conical-shaped tiers. The variety Whistler, which is one of the largest Daffodils grown for commercial purposes, figured prominently with others, such as King Alfred, Spring Glory and Van Waveren's Giant. Mr. D'Alcorn won the Parsons' Cup two years ago, but it has to be won three times before becoming the property of a competitor.

Messrs. J. T. White and Son, of Spalding, who were reserve for the Cup, staged some remarkably fine Daffodils, and were awarded first prize for a box of Trumpet Narcissi, tied and packed as for market.

Mrs. H. Bates, of Spalding, won three prizes. Her Tulips were the best in the exhibition, some of the others showing signs of having been too severely forced.

The awards were as follow: Parsons Challenge Cup, Mr. O. W. D'Alcorn, of Spalding; second, Messrs. J. T. White and Son, of Spalding.

Collection of forced bulb flowers: First, Mr. O. W. D'Alcorn; second, Messrs. J. T. White and Son.

Cut Narcissi: First, Mrs. H. Bates, Spalding.

Collection of Tulips: First Mrs. H. Bates; second, Mr. B. Baxter, Spalding.

Box of Trumpet Narcissi (packed for market): First, Messrs. J. T. White and Sons; second, Mr. G. N. Wright, Whaplode; third, Mr. F. Baxter, Spalding.

Box of Narcissus ornatus: First, Mr. B. Baxter.

Bunch of forced flowers: First, Mrs. Bates; second, Messrs. J. T. White and Son; third, Mr. G. N. Wright.

WESTERN COMMERCIAL SHOW, PENZANCE.

MARCH 3 AND 4.—This show is primarily a commercial exhibition, and one of its objects is to improve the growing, packing and marketing of flowers in the Penzance peninsula and the Scilly Islands. The display of thousands of bunches of golden Narcissi and boxes and boxes of the same flowers as well as sweet-scented Violets, Anemones and exotic foliage, presented a grand spectacle. The popularity of the show was reflected in the attendance, which numbered three thousand. The conferences and lectures were crowded with enthusiastic growers from all over the country, as well as numerous salesmen.

The show was opened by Sir Daniel Hall of the Ministry of Agriculture, and he was supported by Mr. H. V. Taylor, Commissioner of Horticulture of the Ministry of Agriculture. Much of the success of these shows is due to the efforts of the Chairman, Rev. A. T. Boscawen, and the President, Lord St. Levan.

In addition to the conferences and lectures numerous competitions were held for Narcissus bunching, Violet bunching and Broccoli packing. New classes were provided for bulb plantations, and eight growers entered their bulb gardens; the winner of the Cup offered for the best bulb garden over two acres, was Mr. F. TREGONING, Gulval, Penzance.

Owing to the lateness of the season, it was a matter of regret that Mr. P. D. Williams had nothing to show, but this was compensated for in some degree by the remarkable collection of flowering and foliage shrubs staged jointly by the Rev. A. T. BOSCAWEN and Mr. WALTERS, Ludgvan. The subjects included Acacias, Erica magnifica, Erica melanthera, E. lusitanica, the beautiful Myrtus bullata, Pittosporums in great variety, and Rhododendrons.

Lectures were given by Mr. Gordon Gibson on Eelworms, and by Col. Hurst, on Co-operation. Mr. F. J. Chittenden presided at the flower conference, and Mr. H. V. Taylor at the vegetable conference. At the latter, Messrs. Giles and Oldham gave valuable addresses on Broccoli, one of the staple crops of the district; Penzance exports 1,500 tons of flowers, and 15,000 tons of early vegetables.

Trade firms were well represented. Messrs. SUTTON AND SONS had an excellent stand of vegetables, etc., and other exhibitors were Messrs. RUSE AND SON, Falmouth; Messrs. TRESEDER AND CO., Truro; Messrs. R. VEITCH AND SON, Exeter; Messrs. AVIS AND SON, Penzance; Messrs. G. MONRO, LTD.; Messrs. MOGFORD, TIRKIN AND CO., Newquay; Messrs. GOUGH AND CO., Norwich; and Messrs. PUGH AND CO., Exeter. Bulbs were well shown by Messrs. BARR AND SONS, Taplow, and Mr. J. C. MARTIN, Truro. Educational exhibits were put up by the MINISTRY OF AGRICULTURE, SEALE HAYNE AGRICULTURAL COLLEGE, and CORNWALL COUNTY COUNCIL.

The outstanding exhibits in the show were the wonderful heads of Broccoli. Flowers were also well shown, and the classes for packed Daffodils and Violets attracted many notable exhibits. Other noteworthy exhibits included Tulips, various Anemones and Violets. Over 150 bunches of Violets were shown in classes 47 and 48. Amongst the Narcissi exhibited the best were King Alfred, Golden Spur, Sunrise, maximus superbus and Sir Watkin. The competition in all the Daffodil classes was very keen.

The following are the principal prize-winners:

Broccoli.—Six heads of Broccoli, trimmed, any recognised trade variety: first, Mr. T. C. MATTHEWS, Trevean, Gulval; second, PARK FARM, Truro. Six heads of Broccoli, trimmed, raised and grown by the exhibitor: first, Mr. T. C. MATTHEWS; second, Mr. W. D. THOMAS. Three wooden crates of two dozen heads of Broccoli as packed for market: first, PARK FARM, Truro; second, Mr. RICHARD TREGONNING, Ridgeovean, Gulval. Two similar commercial packages of Broccoli giving a definite count, excluding wooden crates, as in Class 3: first, Mr. J. D. THOMAS; second, Mr. W. D. THOMAS. A returnable wicker hamper to hold two dozen heads of Broccoli or 1 cwt. of Potatos: first, Mr. J. H. HOCKING, The Cliff, Chyandour, Penzance.

The best Six Cabbages were shown by Mr. A. WRIGHT MATTHEWS, Pengarth, Mousehole; second, Mr. R. I. EDYVEAN, Torleven Farm, Porthleven. Most convenient and best commercial market package of Cabbage giving a definite count: first, Mr. T. C. MATTHEWS; second, Mr. J. N. THOMAS.

New Potatos in a market container, weighing 14 lb. net.—First, Col. C. H. PAYNTER, Boskenna, St. Buryan.

The most economical sprouting trays (two), one empty and one containing sprouted sets.—First, Col. C. H. PAYNTER; second, Messrs. JEFFERY AND SONS.

Three market bundles of Rhubarb.—First and second Messrs. J. G. LAITY AND SON, Bostrase, Marazion; third, PARK FARM, Truro.

A packed, non-returnable box of Trumpet Narcissi, open to Cornwall and Scilly.—First, and Special, Mr. H. J. GOODING, Tresco, Scilly; second and Special, Mr. A. MUMFORD, Holy Vale, St. Marys, Scilly.

The best packed box of Polyantha Narcissus (not forced).—First and Special, Mr. A. MUMFORD, Holy Vale, St. Marys, Scilly; second and Special, Mr. F. R. WARD, St. Marys, Scilly.

Mr. H. J. GOODING showed the best six market bunches of Narcissus King Alfred; Mr. A. MUMFORD, the best Golden Spur, and Mr. RICHARD TREGONNING, the best six bunches of any other yellow Trumpet Daffodil.

The best six commercial varieties of Narcissi (not forced) were shown by Mr. W. VELLENOWETH, Perranuthnoe, Marazion.

Arums.—Three vases, five flowers to a vase: first Mrs. BOLITHO; second, Mr. R. UREN.

In the vegetable classes Mr. T. C. MATTHEWS excelled for six heads of Broccoli; Mr. S. E. JOHNS, Ludgvan, for six heads of Cabbage; and Mr. J. H. WILCOX, Pendrae Cottage, Gulval, for the best collection to be staged in a space not exceeding six feet of table-run, open to cottagers and allotment holders.

THE ORCHID CLUB.

AT the meeting of the Orchid Club, held on the 11th inst., several extensive groups of great merit were exhibited, in which fine Odontoglossums and interesting species were especially noteworthy.

DIPLOMA OF MERIT.

Odontoglossum Scrapis.—A large, well-shaped flower, three-and-a-half inches across, the sepals and petals dark crimson, slightly broken with white and with white edges. The large, well-displayed lip is white, with crimson spots at the base. The plant carried a beautiful spike of twelve flowers. From Dr. CRAVEN MOORE.

DIPLOMA OF DISTINCTION.

Dendrobium tetragonum.—An unusually fine specimen of this quaint and interesting Australian species, growing on a raft; it carried a large number of four- and five-flowered spikes from the apices of the curious tetrahedral pseudo-bulbs. The flowers are green, spotted and marked with red. From B. J. BECKTON, Esq.

GROUPS.

Dr. CRAVEN MOORE (gr. Mr. Gilden) exhibited a highly attractive group composed of some twenty choice Odontoglossums, all carrying large spikes, and fine plants of Ada aurantiaca, Brasso-Cattleya Cliftoni magnifica, and Lycaste hellemense. Among the Odontoglossums handsome forms of white and blotched hybrid crispums were associated with examples of O. Eros, O. Lobbiae, O. Lilian, O. Brunhilde, and O. Amabelicity.

B. J. BECKTON, Esq. (gr. Mr. Stewart) exhibited a large group containing many species of exceptional interest, including wonderful specimens of Coelogyne sparsa, Dendrobium delicatum, Gomezia planifolia, Restrepia striata, and Saccolabium bellinum. There were also several varieties of Masdevallia, of which genus Mr. BECKTON has a very complete collection, and fine examples of Miltonias and Cymbidiums.

Mrs. FRED. HARDY showed some beautifully-flowered Dendrobiums and Lycaste Skinneri Hardyana, a particularly fine variety that has been in cultivation at Tyntesfield for more than thirty years.

A. T. CUSSONS, Esq. (gr. Mr. Dalgleish) exhibited a selection of fine Cymbidiums, together with Dendrobiums, Lycastes and Miltonias. Of the Cymbidiums excellent varieties of C. Butterfly, C. Castor, C. Sybil and C. Venus were specially attractive, and among the Dendrobiums a beautiful form of D. Saltrolfiae was admirable by reason of its soft rosy-violet sepals and petals and large, open white lip with a purple tip.

F. T. PAUL, Esq., showed a small selection of interesting plants, including some well-grown Cypripediums, the bright, rosy-purple Lycaste Skinneri var. Purple Emperor, and an exceptionally good form of the new Dendrobium Merlin, a seedling of much promise. MORTON JACKSON, Esq., brought some interesting flowers including a pleasing variety of Phaius.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE sixty-first annual general meeting of this useful benefit and provident society was held at the Royal Horticultural Hall, on Monday, March 14. There was a moderately good attendance, over which Mr. C. H. Curtis presided.

After reference had been made to the death of Mr. W. P. Thomson, for many years a member of the Committee, and at one period Treasurer of the Society, a silent vote was taken in memory of the members who fell during the great war.

The reports and accounts of the Society for the year 1926 were presented both in connection with the ordinary and the State sections of the Society's work. In regard to the former, the report showed that during the past year the handsome sum of £3,000 had been invested, thus bringing investments to the very fine total of nearly £73,000. Ninety-three adult and three juvenile members were admitted during the year, and after deducting losses by death and lapsing, the membership now stands at 1,844, or a net increase of 44, as compared with the year 1925. The total income for the year amounted to £6,809 11s. 2d., and the total expenditure, including the investments, to £6,640 8s. 7d. In the year under review the large sum of £1,024 19s. 1d. was paid out to sick members, this being a considerable increase on the amount so paid in the previous year. Aged, chronically disabled and distressed members received £328 14s. 0d., while payments to the nominees of deceased members came to £661 8s. 11d., and funeral benefits, £225. Withdrawals from interest on deposit accounts totalled £122 17s. 1d., while members over seventy years of age withdrew sums from their deposit account amounting to £580 1s. 4d.

The record of attendances of officers and members of Committee is a particularly good one, especially having regard to the fact that several members come a very long distance to attend to their duties.

The adoption of the report and accounts was moved by the Chairman, seconded by Mr. Young, and carried.

Votes of thanks were accorded to Mr. A. Bedford, the treasurer; to Messrs. J. Hudson, Riley Scott and C. H. Curtis, trustees; and to the horticultural press for services rendered. The auditors, Messrs. Gunner and Puzey, were re-appointed, and it was pointed out that these gentlemen had acted in this capacity for a very long number of years, were thoroughly acquainted with the books and working of the Society, and spoke very highly of the manner in which Mr. A. C. Hill carried out his secretarial duties.

A special vote of thanks was accorded to Mr. C. Harding who has a continuous record of twenty-eight years' service on the Committee; the members present agreed that some tangible token of their appreciation of his services should be made. This came as a great surprise to Mr. Harding, who modestly asserted that he had done no more than any other member of the Committee, but he was fortunate in having been able to serve over a longer period than most.

Arrangements were made in regard to the allocation of the funds of the State section to enable the Committee to use a larger amount for the relief of members undergoing dental treatment; one or two other matters were also dealt with, entirely concerned with the State section of the Society's work.

The meeting agreed that on the ordinary side £100 be transferred from the surplus interest account to the advertisement fund.

The Chairman pointed out that the Committee had had under consideration the granting of permission to members over seventy years of age to continue their subscriptions, thereby enabling them to obtain sick benefit, and suggested that in due course the opinion of the members should be invited in connection with this suggestion, and the results placed before the members at an annual or a special general meeting, as the case demanded.

The meeting concluded with a vote of thanks to the Chairman, who had that evening completed twenty-five years' continuous service as Chairman of Committee.

SPALDING BULB GROWERS'.

MEMBERS of the Spalding and District Bulb Growers' Association are anxiously awaiting the result of a representation made to the Chancellor of the Exchequer for a duty on imported bulbs, which, if adopted, would completely change the outlook of the industry in the Fens, which is at present flooded with imported bulbs, many of which are of dubious quality.

Mr. A. W. White, President of the Spalding Association, speaking at the annual dinner of the Association, last week, said that it would mean that many more people would be employed in the industry if bulb growers had some form of protection or preference. Referring to the new Rating Act, he said bulb growers were hoping that glass-houses would get seventy-five per cent. relief, as in the case of agricultural buildings. There were many anomalies in the rating of glass-houses at present. As showing the need for fair valuation, he said that the rating of glasshouses in some cases varied from 2s. 9d. per 100 feet of ground covered to 17s.

An Oak timepiece was presented to Mr. H. W. Quincey in appreciation of his many years' services as Secretary to the Association. The presentation was made by the Chairman (Mr. A. W. White), and carried through with enthusiasm.

ROYAL CALEDONIAN HORTICULTURAL.

THE March meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on the 1st inst., Mr. W. J. Thomson, President, in the chair.

A highly informative paper on "The Violas of Europe," by Colonel E. Enever Todd, was read by his sister, Miss Alice Todd. Colonel Todd made brief reference to the close connection which the evolution of the garden Viola, Violet and Pansy had with Edinburgh, where the hybridisation of them had been carried on by the late Mr. James Grieve, many years ago, as well as by the late Dr. Stuart, of Chirnside, Berwickshire, and others. Colonel Todd stated that the genus Viola was almost cosmopolitan in its distribution, and extended from the Arctic to the Antarctic, and from sea level to over 14,000 feet above it. He entered very fully into the classification of the European species, with the most of which he had made a personal acquaintance in their native habitats, and referred in detail to many of the more important species. He has paid much attention to the genus for some time, and the paper marks a distinct advance in our knowledge of this interesting family, about which, with the exception of the few species which have played such an important part in the evolution of the garden forms, comparatively little seems to be known.

The exhibits consisted of Rhododendron blooms from Miss BARTY, Edinburgh, and an Acacia from Aden, by Mr. R. L. SCARLETT, Sweethope, Musselburgh.

Obituary.

Robert Cockburn.—On Tuesday, the body of Mr. R. Cockburn, gardener on the Dunragit estate of Viscount Inchcape, was found in a dam near the saw-mill. Deceased, who had been in bad health, went out on the previous day, and in the evening his cap was observed floating in the dam, and when the water was run off the body was recovered.

Richard Gill.—It is with the deepest regret that we announce the passing of Richard Gill, of the firm of R. Gill and Son, the Rhododendron specialists of Penryn and Falmouth, at the age of seventy-eight years. By his death, horticulture loses one of those veterans who are so hard to replace; he was a great and successful gardener. Mr. Gill was one of the pioneers of the cultivation and raising of hybrid Rhododendrons, many of which are named after him and his family, while the exhibits of the firm at the leading shows have demonstrated his fine work. He raised several remarkable hybrid Rhododendrons, many of which have occupied a prominent place in gardens throughout this country and other parts of the world, especially New Zealand. In his earlier years, Mr. Gill was well-known throughout the west of England as an exhibitor, where he was successful with stove plants, Orchids, Chrysanthemums, Azaleas, etc. The Azaleas he grew were greatly admired, many of them being perfect sugar-loaf specimens six feet to eight feet in height; later he devoted his energies to Rhododendrons of the Himalayan and Chinese sections, with great success. He had a kind, gentle, unassuming disposition, and was greatly loved. He leaves a widow a daughter, and two sons—Councillor R. E. Gill, of Falmouth, and Mr. H. T. Gill, who is in India.

THE LATE RICHARD GILL.

Alfred Moore.—The death occurred, in sad and mysterious circumstances, on the 7th inst., of Mr. Alfred Moore, the Superintendent of Broomfield Park, Palmer's Green, north London, at the early age of forty-nine. At the inquest it was stated that Mr. Moore, who was apparently in his usual health, was missed on Monday morning, and about an hour later his foreman and four assistants discovered the body in the park lake. The punt which he was in the habit of using was in the centre of the lake. A week or two ago, it was stated, he complained to his wife of having had an accident and injuring his knee through slipping in the punt, and the theory advanced yesterday was that he slipped and fell over the side. Medical evidence showed that he had signs of heart disease, and a sudden attack might have caused him to lose his balance. A verdict of accidental death was recorded.

Ion Haseganu.—We learn with the greatest regret of the death, at the end of January, at the comparatively early age of sixty-two years, of M. Ion Haseganu, Principal of the Horticultural College at Bucarest, Roumania. Following only a year after that of M. Stefanescu, whose death we announced in our issue of February 27, 1926, M. Haseganu's loss is an irreparable one to Roumanian horticulture, and it will be very difficult to find his successor at the College, or in the many other horticultural and allied functions which he performed with so much devotion and skill. Curiously enough, M. Haseganu began life as an actor, having gained a prize for declamation at the Bucarest Conservatoire, and being subsequently engaged at the National Theatre, after which he went on tour and won considerable distinction in the profession. His love of nature asserted itself, however, and he began a course of study at the Herestrau School of Agriculture, after which he proceeded to the Versailles College of Horticulture, returning to take up a position in the Municipal Gardens of Bucarest. His rise was rapid, and when the new Bucarest College of Horticulture was completed, he was placed in full charge and undertook the heavy task of creating from the beginning every department. His zeal and knowledge were equal to the task, but not so his physical strength, and he contracted a chill to which he succumbed. He was one of the founders and original members of the Roumanian Horticultural Society, and had been elected honorary President; he was also "Conseiller Agronome," and professor at the Herestrau School of Agriculture. The creation of a national Horticultural College at Bucarest had been his ambition for over thirty years, and it is sad that he should scarcely have lived to see any fruition of this almost life-long desire. Both he and M. Stefanescu sowed that others might reap.

ANSWERS TO CORRESPONDENTS.

KEW FLAG-STAFF.—*E. B. G.* The Kew flag-staff was erected on October 18, 1919, having been presented to Kew by the Provincial Government of British Columbia to replace the old flag-staff of Douglas Fir which was 159 feet high and calculated to be about two hundred and fifty years old. The Douglas Fir selected for the new flag-staff was found some thirty miles north of the city of Vancouver, and was conveyed by rail and water to Vancouver, and then shaped to its present form by expert axemen. It is square at the base for fifteen feet up, then octagonal up to 157 feet, thence to the summit (214 feet) it is round. A full account of the flag-staff was published in *The Gardeners' Chronicle* for January 24, 1920.

NAMES OF PLANTS.—*C. F. Smith.* 1, Centradenia floribunda; 2, Strobilanthes isophyllus. *P. H. M.* 1, Trichocaulon Pillansii; 2, not recognised; send in flower; 3, Begonia conchaefolia.

PEAR MIDGE.—*F. I.* Pear midge is a very difficult pest to deal with. On a small scale the best plan is probably to remove and burn about three inches of the surface soil from beneath the trees. This destroys the pupae, so that the midges do not hatch in spring. Another remedy is to collect all the affected young fruits before they fall to the ground, and burn them. This prevents the larvae from entering the soil to pupate. A similar result is obtained by coating the surface soil with kainit early in June. It might be worth while to experiment with one of the advertised soil fumigants, or with calcium cyanide. The vendors of the latter would, no doubt, suggest a method of treatment.

Communications Received.—M. M.—A. M. C.—C. C. R.—A. H.—H. A. S.—E. E. T.—A. O.—J. B.—G. G.—E. C.—R. E.—W. M. S.—A. M. S.—G. N. T.—T. S.—A. H.—E. K.—C. N.—A H.—T. S. C.—E. J. P. M.—G. T.

MARKETS.

COVENT GARDEN, Tuesday, March 15th, 1927.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz. ...	10 0 12 0
—elegans ...	10 0 15 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.	30 0–42 0
Asparagus plumosus ...	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistra, green	36 0–60 0
Asplenium, doz.	12 0–18 0
—32's	24 0–30 0
—nidus ...	12 0–15 0
Azaleas, various, 48's, each ...	4 6—7 6
— — 60's, per doz.	21 0–24 0
Boronia megastigma, 48's, per doz.	36 0–48 0
Cacti, per tray —12's, 15's ...	5 0—7 0
Cinerarias, 48's, per doz. ...	12 0–15 0
Cyclamens, 48's, per doz. ...	18 0–21 0

	s. d. s. d.
Crotons, doz. ...	30 0–45 0
Cyrtomium ...	10 0–25 0
Daffodils, 48's, per doz. ...	15 0–18 0
Erica melanthera, 48's, per doz.	24 0–30 0
—60's ,, ...	12 0–15 0
—72's ,, ...	8 0—9 0
Genistas, 48's, per doz. ...	21 0–24 0
Hyacinths, 48's, 3's, per doz. ...	15 0–18 0
— 60's, per doz.	10 0–15 0
Marguerites, 48's, per doz. ...	21 0–24 0
Nephrolepis in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	30 0–48 0
—60's	15 0–18 0
Pteris, in variety	10 0–15 0
—large, 60's ...	5 0—6 0
—small ...	4 0—5 0
—72's, per tray of 15's ...	2 6—3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	21 0–24 0
cuneatum, per doz. bun. ...	15 0–18 0
Anemone fulgens, per doz. ...	3 0—5 0
Asparagus plumosus per bun., long trails, 6's ...	2 6—3 6
med. sprays	2 6—3 0
short ...	0 9—1 3
—Sprengeri, bun. long sprays	2 0—2 6
med. ,,	1 6—2 0
short ,,	0 6—9 0
Azalea, white, per doz. bun.	5 0—7 0
Bouvardia, white per doz. bun.	12 0–15 0
Camellias, 12's, 18's per box	2 0—3 0
Carnations per doz. blooms	3 6—5 0
Croton leaves, per doz. ...	1 9—2 6
Daffodils, Golden Spur, per doz. bun.... ...	2 6—3 6
—King Alfred, per doz. bun.	8 0–12 0
—Sir Watkin, per doz. bun.	3 0—5 0
—Victoria, per doz. bun. ...	6 0—9 0
— Henry Irving, per doz. bun.	2 6—3 6
— princeps, per doz. bun. ...	2 6—3 6
—Emperor, per doz. bun. ...	7 0—9 0
—Double Van Sion, per doz. bun.	5 0—6 0
Fern, French, per doz. bun.	10 0–12 0
Forget-me-not, per doz. bun.	15 0–18 0
Freesia, white, per doz. bun.	3 0—4 0
—special, long	12 0–18 0
French Flowers—	
—Acacia (Mimosa), per doz. bun.	6 0—7 0
—Anemones, mixed doz. bun. ...	6 0—9 0
— —double pink doz. bun. ...	2 0—3 0
—Myrtle, green, per doz. bun.	1 6—2 0
—Narcissus, Paper White, per doz. bun.	2 6—3 0
—Ranunculus—	
—double scarlet	6 0—8 0
—Violets, Parma, per bun. ...	1 6—2 6
—Ruscus, green, per pad ...	6 0—8 0
—Stock, double white, per doz. bun.	4 0—4 6
Heather, white, per doz. bun.	6 0—9 0
Hyacinths, white, large, doz. bun., 6's	9 0–12 0
Iris, Spanish blue, per doz. blooms	4 0—6 0

	s. d. s. d.
Lilac, white, per doz. stems ...	4 0—8 0
—mauve, per doz. sprays ...	5 0—6 0
Lilium longiflorum, long, per doz. ...	5 0—6 0
—speciosum rubrum, long, per doz. blooms ...	5 0—6 0
—short, doz. blooms ...	4 0—4 6
Lily-of-the-Valley, per doz. bun.	24 0–30 0
Narcissus Soleil d'Or, per doz. bun.	3 0—3 6
—Grand Primo, per doz. bun.	5 0—6 0
—ornatus. per doz. bun. ...	8 0—9 0
—Elvira, per doz. bun.	10 0–12 0
—Gloriosa, per doz. bun.	2 6—3 0
—Cornish White, per doz. bun.	5 0—6 0
Orchids, per doz.	
—Cattleyas ...	24 0–36 0
—Cypripediums per doz. blooms ...	6 0—8 0
Primroses, per doz. bun. ...	3 0—4 0
Richardias (Arums), per doz. blooms .	5 0—6 0
Roses, per doz. blooms—	
—Columbia ...	15 0–18 0
—Richmond, per doz. blooms	6 0—9 0
Smilax, per doz. trails ...	4 0—5 0
Tulips, per doz.	
—single white	18 0–30 0
— —yellow ...	24 0–30 0
— —scarlet ...	24 0–27 0
— —pink ...	18 0–21 0
—terra-cotta, per doz. bun. ...	21 0–24 0
—Murillo, per doz. bun.	21 0–27 0
—Couronne d'Or, per doz. bun.	27 0–30 0
—Prince of Austria, per doz. bun.	21 0–24 0
—Darwin, red, per doz. bun.	21 0–27 0
— — pink, per doz. bun. ...	24 0–27 0
— — mauve, per doz. bun. ...	21 0–27 0
Tulips, double—	
—Lucretia, per doz. bun. ...	24 0–27 0
—Tea Rose, per doz. bun. ..	27 0–30 0
—double white, per doz. bun.	27 0–30 0
—Vuurbaak, per doz. bun. ...	27 0–30 0
Violets... ...	2 0—4 0

REMARKS.—Supplies throughout this department have been on the increase generally during the past week and requirements fairly good considering that there is usually less demand for coloured blooms during Lent. More Daffodils are coming from home-growers, including some very fine blooms of Madame De Graaff and other choice varieties. There are also some special Narcissi, such as Horace, Elvira, Barrii and other imported varieties. N. ornatus has remained firm in price owing to limited supplies during the week. Richardias (Arums) have been too numerous during the past week and their prices have been the lowest so far this season. Lilium longiflorum of the formosanum type is very fine in quality and also cheaper. Lily-of-the-Valley has become scarce, but small consignments from Holland have relieved the situation; these imported spikes are of good quality. The prices of Carnations are similar to those quoted last week; there is a shortage of really good blooms, and the prices fluctuate according to quality from 2/6 to 5/- per dozen blooms. Roses are more plentiful but they are mostly of the variety Richmond; other sorts will be greatly welcomed. A few blooms of mauve and yellow Spanish Irises have been on sale. Single Violets have been almost a glut for several days past. More Primroses and Polyanthuses are being received from growers. Supplies from the Channel Islands are on the increase. Daffodils are the cheapest subjects from this quarter and include Golden Spur, Emperor, Henry Irving. princeps, Sir Watkin and Victoria; similar varieties are also being received from Cornwall; these blooms are generally good in quality, and being cut in a more backward condition are more reliable for re-dispatch to the provinces.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, Virginian Albemarle ...	— 45 0
—Greening ...	24 0–26 0
—Oregon Newtown ...	11 0–12 0
—Washington Winesap ...	12 0–14 0
—Nova Scotian—	
—Baldwin ...	18 0–22 6
—Ben Davis ...	17 0–20 0
—Fallawater ...	20 0–25 0
—Russet ...	25 0–30 0
—Stark, per barrel ...	15 0–19 0
—Spys	18 0–22 6
British Columbian—	
—Newtown ...	14 0–17 0
Apples, English—	
—Bramley's Seedling ...	10 0–24 0
Bananas ...	17 0–25 0
Brazils, per cwt.	75 0–80 0
Grape Fruit—	
—Blue Goose...	30 0–40 0
—Jamaica ...	20 0–27 6
—Honduras, per case	20 0–28 0
Grapes, English—	
—Colmar ...	5 0—6 0
Belgian Grapes	3 9—4 0
Grapes, South African—	
—Gros Colmar	12 0–15 0
—Hannepoot, red and white	8 0–15 0

	s. d. s. d.
Grapes, South African—	
—Hermitage ...	8 0–10 0
—Waltham Cross	12 0–15 0
—Molinera ...	12 0–16 0
Lemons, Messina, boxes ...	14 0–20 0
Nectarines, South African ...	5 0—8 0
Oranges—	
—Jaffa, per case	17 0–18 0
—Californian Navel ...	28 6–30 0
—Denia ...	25 0–35 0
—Murcia ...	16 0–25 0
Pears, South African—	
—Superfin ..	7 0—8 0
—Louise Bonne of Jersey ...	5 0—8 0
—Beurré Hardy	5 6—8 0
—Beurré Bosc	5 0—8 0
Pines, case ...	18 0–30 0
Plums—	
—Kelsey ...	8 0–12 0
—Wickson ...	5 0—6 0
South African Peaches—	
—Yellow Flesh	3 6—4 0
—White Flesh	5 0–12 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, Devon	4 0—5 0
—Special Lauris	6 0–12 0
—Best ,,	4 0—5 0
Beans, Forced—	
—Special ...	3 6—4 0
—Others ...	2 0—3 0
Beans, Madeira—	
—Finest	4 0—6 0
Beets, per cwt.	5 0—6 0
Belgian Chicory, per lb.	0 3–0 3½
Cabbage, per doz.	2 0—2 6
Carrots, per ½-bag ...	4 0—6 0
Cauliflowers—	
—English, doz.	2 6—4 0
—St. Malo, crate	4 0—6 0
Celery, fan ...	1 6—3 0
Cucumbers ...	10 0–18 0
French Endive, per doz. ...	2 6—3 0
Leeks, per doz.	2 0—2 6
Lettuce round,, per doz. ...	1 6—2 6
Mint. forced, per doz. ...	4 0—6 0

	s. d. s. d.
Mushrooms	
—cups ...	2 0—3 0
—Broilers ...	1 6—2 0
Onions—	
Valencia ...	11 0–12 6
Parsnips, per cwt. ...	4 6—5 6
Potatos—	
—King Edward ton ...	...£9/10 £10
—others, ton	...£6 £7/10
—Algerian, per lb.	0 2–0 2½
Potatos, New—	
—Guernsey ...	0 7—0 8
—Canaries, case	8 0–14 0
Radishes, per doz.	1 6—2 6
Rhubarb, forced, per doz. ...	1 6—2 0
—Natural ...	4 0—6 0
Savoys, per tally	8 0–12 0
Seakale, per punnet ...	1 9—2 3
Sprouts, Brussels per ½-bag ...	2 0—5 0
Tomatos—	
—English, per lb.	— 6 0
—Canary Island	12 0–17 0
Turnips, per cwt.	4 0—5 0

REMARKS.—Business has been variable but has shown some expansion in volume, as is the normal for the period of the year. Probably Cape fruit is the most important produce on the market; shipments are comparatively heavy and consist mainly of Peaches, Plums, Pears and Grapes. Apples from North America are not a good trade just now; it is expected that the first New Zealand Apples, due next week, will prove more popular. A sprinkling of English Apples is still available, but the only variety selling even moderately well is Bramley's Seedling. Strawberries and Grapes from Belgium are selling fairly well. Oranges from Spain are inclined to be cheaper, and the situation in the Lemon market is practically unchanged. Choice vegetables, such as French Beans, Peas and new Potatos are a steady trade; Beans are more plentiful and cheaper. Asparagus is in greater supply and is cheapening in value. A few English Tomatos are on sale, but are very dear. Tomatos from the Canary Islands are selling slightly better this week. Cucumbers are cheaper, the quantities being on the heavy side for the time of year. Trade in forced Rhubarb is weak owing to increasing quantities of natural Rhubarb. Cauliflowers have been a variable business, supplies being heavy from St. Malo, Guernsey, and the West of England. Mushrooms are still plentiful, but their prices are fairly steady. Salads from France are selling well. Business in green vegetables is slow and disappointing to the growers. New Potatos from Algeria and the Canary Islands are cheap. Trade in old Potatos is unchanged.

GLASGOW.

Price movements in the cut flower market displayed considerable irregularity, and the changes were mostly in a downward direction. Tulips were cheaper, except Tea Rose, which realised 1/4 to 1/6 (6's), while Lucretia was worth from 1/- to 1/4; Ibis, 1/3; Bartigan and William Copland, from 10d. to 1/3; Prince of Austria and Couronne d'Or realised 10d. to 1/2; Flamingo and La Rêve, 10d. to 1/-; and Murillo, 9d. to 10d. Outdoor-grown Daffodils are arriving in larger quantities and sold freely at 2/- to 3/- per dozen bunches; and indoor blooms made the following prices: King Alfred, 10d. to 1/4 per bunch; Glory of Lisse, 9d. to 10d.; Sir Watkin and Emperor, 6d. to 8d.; Golden Spur, 5d. to 8d.; ornatus, 6d. to 7d.; and Narcissus, 3d. to 4d. Prices of Carnations ranged from 4/- to 5/- per dozen; Lily-of-the-Valley, 2/- to 2/6 per bunch; Lilac, 1/6 to 2/-; and Mimosa. 5/- to 6/- per cane. Violets were plentiful and cheap at 3d. to 6d. per dozen bunches. Richmond Roses realised 4/- to 6/- per dozen. and first consignments of Wedgwood Iris sold for 5/6 per dozen spikes.

Business in the fruit market continued quiet. Jaffa Oranges advanced 3/- per case to 22/- for 144's, single chalks, and 24/- for 180's and 240's. Two chalks were 1/- and three chalks 1/6 less. Californian seedless Oranges averaged 27/- per case, and a first importation of Port Rico Oranges made 20/- per case. Grape Fruit from the latter place fluctuated between 21/- and 24/-. Prices for Apples were steady, Winesap (fancy) made 13/- to 14/- per case; Greening, 29/- per barrel; Baldwin, 26/- to 27/-; Ben Davis, 18/- to 22/-, and York Imperial, 22/- to 25/- Rosaki brands of Cape fruits were superior in quality and made good prices as follows: White Grapes 12/- to 14/- per box; Yellow Peaches, 5/- to 6/-; freestone Peaches, 6/6 to 8/-; and Beurré Diel Pears, 6/- to 7/-.

A steady turnover was reported in vegetables. Prices of Lettuce declined to 4/- and 5/- per crate; Dutch Cucumbers varied from 9/- to 14/- per dozen; English Cucumbers 12/- to 15/-; Cauliflowers, 7/- to 9/-; Endive, 3/-; Radishes, 3/- to 3/6; Carrots and Turnips, 8d. per bunch; Madeira Beans, 4/- to 6/- per box; Algerian Potatos, 3d. per lb; and Rhubarb, 30/- to 36/- per cwt.

THE WEATHER IN FEBRUARY.

AFTER the first week of February winds from the south-eastern quadrant prevailed almost daily and the month was unusually calm and humid, with large variations of temperature from day to night, and from one twenty-four hours to the next. From the 2nd to the 19th barometric pressure was high to very high, but throughout the concluding week it was correspondingly low. The second week of the month was a particularly cold one; most of the final eight days, however, were unseasonably warm. Haze, mists and slight fog were very prevalent, and a striking minimum of ozone characterised the middle of the month. The mean temperature, at a fraction below 40°, was almost exactly normal. So also was the duration of sunshine, at 66 hours. Rain fell on fifteen days, or one fewer than usual, and the total amount was 1·91 inch, or a quarter-of-an-inch below the average. Frost was registered in the shade on eleven dates, and ground frost occurred on fourteen nights. There were no gales, nor was any snow experienced. Hail fell once. Ice was upon the large lake in Hesketh Park on six days, but its thickness always remained under an inch. *Joseph Baxendell, The Fernley Observatory, Southport.*

GARDENING APPOINTMENTS.

Mr. F. Lansbery for the past sixteen years gardener to the Hon. LADY HULSE, Breamore House, Salisbury, as gardener to H. MARTIN GIBBS, Esq., Barrow Court, Flax Bourton, Somerset. (Thanks for 1/6 for R.G.O.F. Box.—EDS.).

Mr. P. W. Ambrose for the past four years gardener to E. G. A. BECKWICK, Esq., Clewer Lodge, Windsor, as gardener to VISCOUNTESS SUMNER, Ibstone House, near High Wycombe, Buckinghamshire. (Thanks for 2/6 for R.G.O.F. Box.—EDS.)

IF THERE IS REAL QUALITY AND GOOD HONEST SERVICE behind your advertisements, they will pay, and pay handsomely, whatever the initial outlay may be.

THE
Gardeners' Chronicle
No. 2100.—*SATURDAY, MARCH* 26, 1927.

CONTENTS.

Alpine Garden—
  Primula suffrutescens 210
  Synthyris reniformis 211
Arboretum for Ontario, an 207
Bee, the leaf-cutting... 218
Bulb garden—
  Crinum Powellii ... 210
  Seedling Snowdrops 210
Carnation, leaf rot of the 216
Crocuses at Hampton Court 207
Economic plants of the Bay Islands ... 217
Edinburgh, notes from 213
February rainfall at Culzean Gardens ... 217
Florists' flowers—
  Pansies and Violas... 210
Flower garden—
  Mimulus glutinosus 210
  Pyrola rotundifolia 210
"Gardeners' Chronicle" seventy-five years ago 207
Ghent Floralies, 1928... 206
Horticultural exhibition at Alkmaar... 206
Imports of fruit and vegetables from Belgium 206
Indoor plants—
  Poinsettias ... 210
Kew Gardens... ... 205
Lilium Thunbergianum, the hybrid origin of 216
Lime Trees, historic, at Bourlon Wood, France 211
London Squares, Bill for the preservation of 206
Obituary—
  Pitt, H. T. 221
Pear Verulam... ... 217
Phyteuma orbiculare 218
Primulas at Hillside, Reading 215
Railway Station Gardens 206
Royal Gardeners' Orphan Fund 206
Sap, the ascent of ... 205
Singapore Botanic Gardens... 205
Societies—
  Guildford and District Gardeners'... 220
  Horticultural Club... 218
  Royal Horticultural 219
Stiles 214
Sunlight-ray lamps in glasshouses... ... 218
Trees and shrubs—
  Buddleias 211
  Grevilleas 211
Vegetable garden—
  Maincrop Onions ... 217
  Parsnips 217
Vilmorin family, the... 214
Violas, a revision of ... 212
Vita glass 218
Week's work, the ... 208
White Medal of Honour, award of the 206
Wisley, notes from ... 213

ILLUSTRATIONS.

Alpine House at Wisley, the new 214
Arctostaphylos Manzanita at Edinburgh 212
Carnation, leaf rot of 216
Hoe, the Hampson Shoulder 221
Lime trees of Bourlon Wood, ... 208, 209, 211
Primulas at Hillside, Reading 213, 215
Snowdrops at Wick House, Bristol 207
Vilmorin, Mme. Philippe L. de, portrait of 206

Average Mean Temperature for the enusing week deduced from observations during the last fifty years at Greenwich, 42·8°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 23, 10 a.m. Bar. 29·5. Temp. 54°. Weather, Raining.

The Ascent of Sap. It is a good thing for men of science to have in their keeping not only imposing bodies of knowledge, but one or two technical mysteries. Of such salutary antidotes to scientific cocksureness the botanist possesses at least one first-rate mystery—that of the mechanism employed by trees in forcing up from the root to the crown a constant and considerable stream of sap. There have, of course, been many suggestions designed to elucidate the mechanism of the ascent of sap, but none of them is altogether convincing. In such cases the golden rule is "when in doubt try vitalism"—that is, when physical explanations fail, fall back on the mysterious powers of vital force. Thus, in the case of the ascent of sap, it used to be supposed that the living cells associated with the dead conducting vessels of root and stem acted as a series of relay pumps, each of which forced water a little way upward. Unfortunately, however, for this pretty hypothesis, the facts appear to be against it. Recent studies* of this problem—carried out in the Laboratory for Plant Physiology, Tucson, Arizona, indicate that the living cells associated with the wood play no part whatever in the process, if, indeed, they do not actually tend to impede it. It appears that in certain trees—Willows, for instance—the region of conduction lies in the late summer-wood of some ten to twelve annual rings. Now the wood vessels of this late summer-wood are not in contact with cellular elements. Those that are—for instance, the vessels of the spring-wood—soon become blocked by the ingrowth into them of cellular tissue and, thus blocked, cease to conduct water. A similar state of affairs has been observed also in the Walnut, though in that case it is the late summer-wood of only the three youngest annual rings that conduct water; the rest of the wood is put out of action as an aqueduct either by the blocking of the vessels by ingrowing cellular tissue or by the conversion of the wood into heart-wood. There are yet more powerful reasons for denying the cellular tissue of the woody stem any rôle in water-conduction. Many years ago, Strasburger demonstrated that water-conduction continues for many days after a certain length of a woody stem has been killed; the root below still goes on absorbing water, and the leaves above still receiving it remain fresh and green. This classical experiment has recently been repeated by Professor Overton (*loc. cit*). A Willow about twenty-five feet high was sacrificed to experimental piety. Sawn off, its cut end was lowered into strong picric acid, and the trunk stood in the poison for four days. It was then removed and placed in a dye (acid fuchsin) the course of which could be traced subsequently by sawing up the wood. After four days in the dye it was found that—like the cat that kept on walking—the Willow, enjoying as many lives, had kept on transpiring. The dye which was offered to the trunk killed by the poison passed up the dead trunk to a height of over twelve feet, and followed just the same course as water does in the normal, uninjured stem. We are, therefore, left with no other interpretation than that put forward many years ago by Professor Dixon, of Trinity College, Dublin: that in the vessels of a tree there are many continuous columns of water, starting from the leaves to the finest ramifications of the root; and that as water is lost by the leaves, these columns, like watery ropes, are hauled up bodily and unbrokenly. Like many modern efforts of art, this is a picture by no means easy to grasp; but there it is; we may regard it as a true presentment of the ascent of sap, or we may, whilst not denying its verisimilitude, still cherish the problem as a mystery pleasant to contemplate and, as a mystery must, lying just outside the range of our comprehension. One of the great cosmic facts is this, on every sunny day the vegetation of this globe withdraws from the earth millions of tons of water, carries it upward toward heaven on a journey ranging from one inch or two to a hundred yards or more, and discharges that burden as invisible vapour into the atmosphere, day in, day out, so long as the life of plants endures.

Kew Gardens.—The *Bulletin of Miscellaneous Information* (Appendix 1, 1927), published by the Royal Botanic Gardens, Kew, contains a review of the work of the Gardens during 1926. Particulars are given of Dr. Hill's visit to America as a delegate to the International Congress of Plant Sciences, held at Ithaca, New York State, U.S.A. His itinerary was very similar to that of Mr. Chittenden, of which an account is given on page 218. With regard to the Gardens, it is stated that the number of visitors in 1926 was 1,162,547, which is over half-a-million decrease on the figures of the preceding year. The re-imposition of a charge of 1d. for admission on the 1st January, 1926, apparently did not account wholly for the decreased attendance, as the number of visitors who attended during the first four months of that year exceeded by over 21,000 that in the corresponding period for 1925. The decline was greatest in May and June, when travelling facilities were restricted owing to the industrial troubles. The figures for June, 1925, and June, 1926, are 332,458 and 144,174 respectively. The unusually inclement weather in May, also adversely affected the attendance. The new Rhododendron House has been planted; the greater number of the plants used have been raised and grown at Kew, but several valuable species have been contributed, notably by Mr. J. C. Williams and Mr. Lionel de Rothschild. The soil with which the beds have been filled has been taken from the Queen's Cottage Grounds, at Kew, as the *Bulletin* states it is a much better medium for cultivating Rhododendrons under glass than a peaty soil, which is very apt to turn close and sour in a few years' time. The natural soil at Kew is free from lime and keeps sweet for a much longer time than peat. In order to screen the unsightly view of the docks and railway across the Thames at Brentford, a number of Elms and other trees have been felled and large evergreens planted in their places. Owing to the extension of the Great Western Railway's works right up to the Sion House property, it has been decided to carry the screen of evergreens still further. It is stated that the most interesting plant that flowered at Kew during 1926 was Amorphophallus Titanum. His Majesty The King presented the Gardens with several fine Palms from Frogmore, and these have been planted in the Temperate House and the Palm House. Another notable gift is that of 850 bulbs of Hippeastrums, the collection of the late Mr. J. A. Kenrick. In view of the disability of cultivating certain trees and shrubs successfully on the low, flat levels of the Garden, owing to early growth, due to unseasonable warmth, being ruined by frost later, a trial of certain trees and shrubs is being conducted in Richmond Park, where, through the courtesy of His Majesty's Office of Works, the Kew authorities have been permitted to use a plot of ground on one of the higher elevations. Meteorological instruments have been installed in the Park near the plantation, and it is hoped that the records from these instruments will provide an interesting comparison with those of the meteorological records at Kew and those of Kew Observatory. So far, it is shown that the daily maxima in the Park are, in general, slightly lower than at Kew, while the minima tend to be slightly higher. The retirement of Mr. J. Masters Hillier, after forty-seven years' service in the Museums, is referred to in the *Bulletin*, and the appointment of Mr. W. Dallimore to the office of Keeper. No fewer than 87,400 specimens were mounted in the Herbarium during 1926, and 47,792 specimens incorporated in the Herbarium. The total number of specimens received during 1926 was about 23,132, of which 4,548 were purchased.

The late Sir George Holford.—The estate of the late Sir George Holford includes unsettled property to the gross value of £510,269, with net personalty, £432,664. He left £10,000 upon trust for his agent, David Lindsay, for life, with remainder to Mr. Lindsay's two daughters, and he left an annuity of £50 to his gardener, Mr. W. T. Mitchell.

Singapore Botanic Gardens.—Guide books serve a useful purpose, although few of them are really entertaining. In his *Guide to the Singapore Botanic Gardens*, however, Mr. I. H. Burkill has provided entertaining reading and abundant interesting and beautiful illustrations of scenes and the finer specimens of plants in the gardens of which he was the Director. He has something to say of special interest about every one of the many hundreds of plants he mentions, and has arranged the text in such a way that a visitor may, by the further assistance of the large garden plan, easily find the plants he wishes to study. Instead of giving a lengthy history of the Gardens, the author has indicated their evolution by means of a graceful dedication of his guide "To Henry Nicholas Ridley, C.M.G., F.R.S., who as Director, from 1888 to 1912, gave to the Botanic Gardens their scientific reputation; and also to the memory of Major-General Sir W. Orfeur Cavenagh, who, during his service as Governor of the Straits Settlements (1859 to 1867) did all that he could unofficially to establish the Gardens; of John Earn Macdonald and Edward John Leveson, merchants, and successively Honorary Secretaries and Treasurers of the Agri-Horticultural Society of Singapore, which found funds for their early growth; of Lawrence Niven, planter, who laid them out for the Society; of James Henry Murton, the first Superintendent under the Government of the Straits Settlements, for his vigorous planting in them; and of Nathaniel Cantley, Superintendent from 1880 to 1888, as having been the originator of much that is good in their internal organisation." This illustrated Guide is a work of art and its index renders it a useful book of reference to tropical trees and shrubs (the authority is given for every name); at one dollar a copy it is amazingly cheap.

---

* Annual Report of the Director of the Laboratory for Plant Physiology, Carnegie Institution of Washington. *Year Book No.* 25, 1925-26.

A New Flower Show.—The Harrogate Agricultural Society has decided to include a horticultural exhibition in its annual show. The flower show is fixed for Friday and Saturday, August 5 and 6, and will be held in a separate field. Harrogate is a town of beautiful gardens and parks, and it is expected that large numbers of entries will be received in the several classes, which are mostly non-competitive. Mr. C. W. H. Allen is Chairman of the Committee, members of which include Lady Evelyn Collins, Ella, Lady Peel, Col. W. F. Collins, Mr. J. G. Besant, and the Rev. J. Bernard Hall.

Competitive Plans for a German Park.—The town of Tilsit, in Germany, is to have a new park, and the plans for the laying out of the ground are to be the subject of a competition, open to all German garden architects. There are several prizes, which will total 4,000 marks; and the fortunate competitor whose plans are finally selected will be invited to take part in the actual work of construction.

Railway Station Gardens.—The London and North Eastern Railway Company announce a competition for prizes to be given by the Directors for the best-kept stations throughout their system. Many prizes and certificates will be awarded, and an inspection will be held in July and August this year. In awarding the prizes, the judges will take into consideration the situation of the station and space available for flower and shrub displays, apart from the general condition and cleanliness of the station premises.

Ghent Floralies, 1928.—The very business-like Committee of the Ghent Agricultural and Botanical Society which has in hand the arrangements for the Floralies of 1928, has already sent out the Schedule for this Exhibition which contains over 125 pages. It is to be held from the 21st to the 29th of April, 1928; as usual, the King of the Belgians has accorded his patronage, and M. François Spae is President of the Organising Committee. The exhibits are to be divided into twenty-eight groups, each group being sub-divided; and the importance of the event may be judged from the fact that there are nearly eight hundred divisions! The prize list is too long to be examined in detail, but it may be said that it contains many cups and prizes of very great intrinsic value apart from the satisfaction of winning in circumstances where the general level of merit is of such a high average as it always is at Ghent. M. Emile Draps, the President of the Antwerp Royal Agricultural and Horticultural Society, is offering a special prize in the form of a work of art valued at 1,000 francs, to be awarded to the exhibitor who is considered to have contributed most to the success of the section of Floral Art. The Press Commission is, as usual, composed of members drawn from various countries; among the English members are Mr. J. S. Brunton, of the *Horticultural Trade Journal*;—Mr. Charles H. Curtis, of *The Gardeners' Chronicle*; and Mr. Charles Pearson, of the *Horticultural Advertiser*. The designing of the Exhibition is in the capable hands of M. Henri de Wilde, the Director of the Ghent parks and open spaces. A great interest is being taken in the event by M. le Comte de Kerchove de Denterghem, the Governor of East Flanders, who has consented to act as President of the Conseil de Direction. He is one of the most enthusiastic horticulturists in Belgium, and his sympathetic support in matters appertaining to horticulture can always be counted upon.

Bill for the Preservation of London Squares.—A Bill, entitled the London Squares (Preservation) Bill to protect or limit building on garden squares in London, has been presented to Parliament by Mr. John Scurr, M.P. The Bill defines a "garden square" as any enclosed garden or open space (other than a garden or open space vested in or under the control and maintenance of a public or local authority for the use and enjoyment of the public) which has been set apart or has existed for the use, enjoyment, or benefit of the inhabitants of any square, crescent, circus, street, or other place, and which during the twenty-five years ending on the 31st day of December, 1926, has been (apart from any occupation or user thereof by or on behalf of the Crown or a Government Department in connection with war purposes) maintained, kept, or used as a garden square. The Bill proposes that it shall be unlawful without the sanction of the London County Council (or in the City, of the Lord Mayor, Aldermen, and Commons of the City of London in Common Council assembled) for any person to erect any building or structure in, over, or upon any garden square in the Administrative County of London. Such sanction may be given, subject to such terms and conditions as the Council may think fit to impose, including if thought fit, a condition that in consideration of such sanction the owner of the garden square on which it is desired to build shall: (a) dedicate to the use and enjoyment of the public as an open space such portion of the garden square as shall be agreed upon, or (b) transfer or convey to the Council a specified area of land for use as an open space, or (c) pay to the Council such sum of money as shall be agreed upon to be expended by the Council for the provision or extension of an open space or open spaces.

MME. PHILIPPE L. DE VILMORIN.

(see p. 215).

Award of the U.S.A. White Medal of Honour.—The medal awarded annually by the Massachusetts Horticultural Society in memory of George Robert White, has been awarded for 1927 to Dr. Liberty Hyde Bailey, of Ithaca, New York. The award is made to Dr. Bailey for his work in horticulture, and especially as an educator, author and editor. Dr. Bailey was born in South Haven, Michigan, in 1858, and after graduating from the Michigan Agricultural College, he became a professor of horticulture and landscape gardening. Subsequently he was appointed to the chair of Experimental Horticulture at Cornell University, where he became the Dean of the College of Agriculture and Director of the Experiment Station. He retired in 1913, and has been busy since in travelling, lecturing and writing. The George Robert White Medal is the highest horticultural honour in America; it is of gold, and weighs eight-and-a-half ounces. Dr. Bailey's *Standard Cyclopedia of Horticulture* is the most complete work of its kind ever attempted; it is on the lines of Nicholson's *Dictionary of Gardening*, but much more complete than that work, and as a book of reference on horticulture, it is one of the most useful ever published. Dr. Bailey's other numerous works are valuable contributions to horticultural literature.

Horticultural Exhibition at Alkmaar.—A series of horticultural exhibitions is being conducted at Alkmaar, Holland, covering practically the whole of the bulb-flowering period. On March 26 and 27 a children's bulb-growing competition will be judged, in which the approximate number of entries may be gathered from the fact that 9,000 bulbs were given out. Probably the greatest interest will centre upon the second period from April 17 to 22, when it is expected that the great flower-growing centre of Aalsmeer will yield the best of the growers' produce; groups of 500 Darwin Tulips and Narcissi will be shown, and valuable money prizes awarded.

The Royal Gardeners' Orphan Fund.—It will be remembered that in our report of the recent Annual General Meeting of the subscribers to the above gardening charity, we mentioned that the Chairman, Mr. David Ingamells, brought before the meeting some particulars, just then received, of the orphan children of Mr. G. F. Waller, late gardener at The Syren, Hayling Island, Hampshire. Both Mr. and Mrs. Waller died on the same day. We are glad to learn that all the necessary particulars have been obtained, and that the Committee, acting on a resolution passed at the Annual Meeting, has placed the two children on the full benefits of the fund. Mrs. Saywell, of Havant, a sister of the late Mr. Waller, has kindly undertaken to care for the children. We also learn that the Fund has received from her executors the legacy of £100 left by Mrs. George Monro, J.P., who died in April of last year. As is well-known, the deceased lady and the members of her family have been very generous supporters of this admirable charity.

Imports of Fruit and Vegetables from Belgium—A report has lately been issued in Belgium giving particulars of the weight of horticultural produce exported thence to various European countries in 1926, and it is interesting to observe certain of the figures which concern the produce sent to Great Britain. Although Potatos are so widely grown in Great Britain, Belgium sent us between four and five million kilogrammes (a kilogramme being about two-and-a-quarter pounds). Of Cherries we received nearer three million than two million kilos, and as the total weight exported was not much over three million, it is plain that we took the bulk of the Cherries grown. Of Pears we imported from Belgium the enormous total of nearly thirty milllion kilos, and of Apples, four-and-a-half million; Plums totalled nearly three million, and Grapes well over two million kilos. Of nursery produce the totals are much smaller; we obtained 14,000 kilos of bulbs from Belgium, while Rose trees were imported only to the extent of 7,720 kilos, compared with 114,774 kilos sent to France.

An Arboretum for Ontario.—Mr. H . Moore, of the Ontario Department of Agriculture, writes from Toronto, under date of February 6: "I am pleased to report that an Arboretum is to be established in the Province of Ontario, at Bowmanville, at what is known as the Boys' Training School. The School is located about forty miles east of Toronto, a city of 600,000 people, and has splendid railway and highway facilities, being close to the Canadian Pacific and Canadian National Railway stations, also to the Toronto-Montreal Provincial Highway. The school at present has seventy boys in attendance. It is intended to accommodate three hundred. The area at the school estate is three hundred acres, most of which is devoted to agriculture, a few acres to fruit culture, and fifty to the forementioned project, with opportunity to extend as necessary. A plot of five acres is to be laid out for flower demonstration or as a small botanic garden. The feature, however, will be the Arboretum. The area is delightfully undulating, and is intersected by a splendid stream. It has soils and positions which are ideal for collections of practically all hardy subjects, having gentle slopes which face all points of the compass. It also has considerable areas of gently rolling land." To this letter we may add that the Training School estate referred to was presented to Ontario by Mr. John H. H. Jury, of Bowmanville, and Mr. Moore has prepared the plans for the Arboretum and gardens.

Legacy to a Gardener.—The late Hon. Mrs. Eliot Yorke left a legacy of £100, free of duty, to her gardener, Mr. Caleb Briars.

Crocuses at Hampton Court.—Although a week later than the official "Crocus" Sunday at Hampton Court, last Sunday proved to be the popular time for the early spring festival, and the large number of visitors found the spacious breadths of Crocuses in the grassy slope by the canals well worth the journey. In the brilliant sunshine the flowers opened widely and made a gorgeous display. Although it is too early to expect many other flowers, yet, in the long border, in several of the flower beds, and in the so-called Dutch Garden, there were masses of Arabis, Forget-me-Nots, Violas and the first Daffodils, to be admired; while amongst shrubs were bushes of Ribes sanguineum, Cydonia (Pyrus) japonica and Prunus Pissardii in full bloom.

Effects of Nitrogen-Fixing Bacteria on the Growth of Maize.—The well-known French horticulturist and agricultural chemist, M. Georges Truffaut, of Versailles, has carried out, with the collaboration of M. N. Bezssonoff, a series of interesting experiments on the influence on the growth and development of Maize of nitrogen-fixing bacteria. It was found that by artificially increasing the number of bacteria and thus enhancing the amount of nitrogen supplied to the roots of the plants, the growth underwent a marked improvement. The details of the experiments and of the exact material and apparatus used have been published in a little pamphlet, itself a reprint of the report of the session of the 29th November, 1926, of the Académie des Sciences in Paris.

Brussels International Exhibition.—An international Horticultural Exhibition is to be held in Brussels, in the large Jubilee Palace Hall and the gardens attached, from the 10th to the 18th of September, this year. The King and Queen of the Belgians are according their patronage, and the exhibition will also enjoy the co-operation and support of the Belgian Government, the municipal authorities of Brussels, and the Belgian provincial governors. The arrangements are being made by the Royal Horticultural and Agricultural Society of Brussels, but many other Societies are giving their whole-hearted assistance to make the event a successful and impressive one. The area devoted to exhibits of plants and horticultural products in general will measure 17,000 square metres, and ample space will be devoted to colonial exhibits. It is anticipated that hundreds of thousands of visitors will attend the Exhibition, and an overwhelming response is anticipated to the invitations now being issued to exhibitors to take space for their specialities. Full particulars, and programmes in due course, may be obtained on application to M. Eugene Draps, Uccle, Brussels.

Appointments for the Ensuing Week.—MONDAY, MARCH 28: Harrogate and District Horticultural Association's meeting. TUESDAY, MARCH 29: British Carnation Society's show at the Royal Horticultural Hall (two days). WEDNESDAY, MARCH 30: Tamar Valley Commercial Horticultural Society (two days); Instow Spring Flower Show. THURDSAY, MARCH 31: Paisley Florists' Society's meeting. FRIDAY, APRIL 1: Accrington and District Chrysanthemum Society's meeting. SATURDAY, APRIL 2: Paisley Florists' Society's show; Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Sikkim Rhododendrons.*—From a remark in your able Leader of last week, it appears that the fact of most of the Sikkim Rhododendrons having, though unprotected, thriven in the open air throughout last winter is not generally known. Small plants of all the species were planted out, late in autumn, among the Rhododendron clumps on either hand of the main walk at Kew. Not one of these has been killed; all, with few exceptions, are at this moment healthy, and many have flourished. There are the following: R. argenteum, from 6-7,000 feet, and R. Campbelliae from 8-10,000 feet, both very strong and luxuriant; R. barbatum (8,000 feet), and R. campanulatum (11,000 feet), several plants of each strong and healthy; R. ciliatum (10,000 feet), several specimens in the same state, two or three have well-formed flower-buds and will probably blossom in a week or two; R. lepidotum (12-14,000 feet), a little of, much stronger and healthier than the plants in the greenhouse; R. argenteum (8,000 feet), a few robust specimens; R. glaucum (11,000 feet), many particularly healthy young plants; R. campylocarpum, cinnabarinum, and Thomsonii (all from 10-12,000 feet), several plants (a dozen or so) of each, and all strong and healthy; R. Dalhousiae (7,000 feet), a few plants, not vigorous or promising; R. Falconeri (10,000 feet), Aucklandii (6-7,000 feet), and lanatum (10,000 feet), one or two fair specimens of each. The above have had no protection, but such as the surrounding low Rhododendron bushes have afforded; and upon the whole they appear to have suffered less from shrivelling of the ends of the leaves than those in the conservatory have. The trying season has, however, but now commenced, and I have little expectation of many of them surviving the spring, without much shade and moisture. The soil at Kew, even in these made beds, is light and dry; the roots of the young plants do not strike deep, and I felt the leaves of several to be quite warm under the sun of last Monday, clearly indicating a checked circulation. In their native localities, at this early state of growth, young plants have a very wet, cool subsoil in the spring months, so that though the sun's rays be more powerful than in England, they are provided, by an abundance of humidity at the roots, against any injury than would arise from a suddenly increased circulation. Most of these species again, being natives of 8-12,000 feet, experience a very much colder winter than that of England is; they are consequently kept in too excited a state here, and the spring frosts of April are all the more to be dreaded. In the Himalaya the first great increase of temperature occurs in March, which is 8° warmer than February; this brings forward the Himalayan plants, which are not exposed afterwards to night frosts. In England, an equivalent increment of temperature does not occur till May; but our winters are so mild, that the cultivated Himalayan plants are as forward in April in England as they are in their native country, and consequently suffer extremely from our night frosts. In the conservatory three plants of R. ciliatum remain in flower; these flowers are very much larger than I ever saw them in the Himalaya (several blossoms are three inches diameter!), but nearly white, probably from the difference between the amount and intensity of solar light at 10,000 feet in May, of lat. 27°, and at the level of the sea in March of lat. 52°. I have been just shown a magnificent head of R. arboreum in flower, from Mr. Barclay, of Bury Hill, who informs me that the plant is a dwarf low shrub raised from Kemaon seeds and grown without any protection. *J. D. Hooker, Gard. Chron., March* 27, 1852.

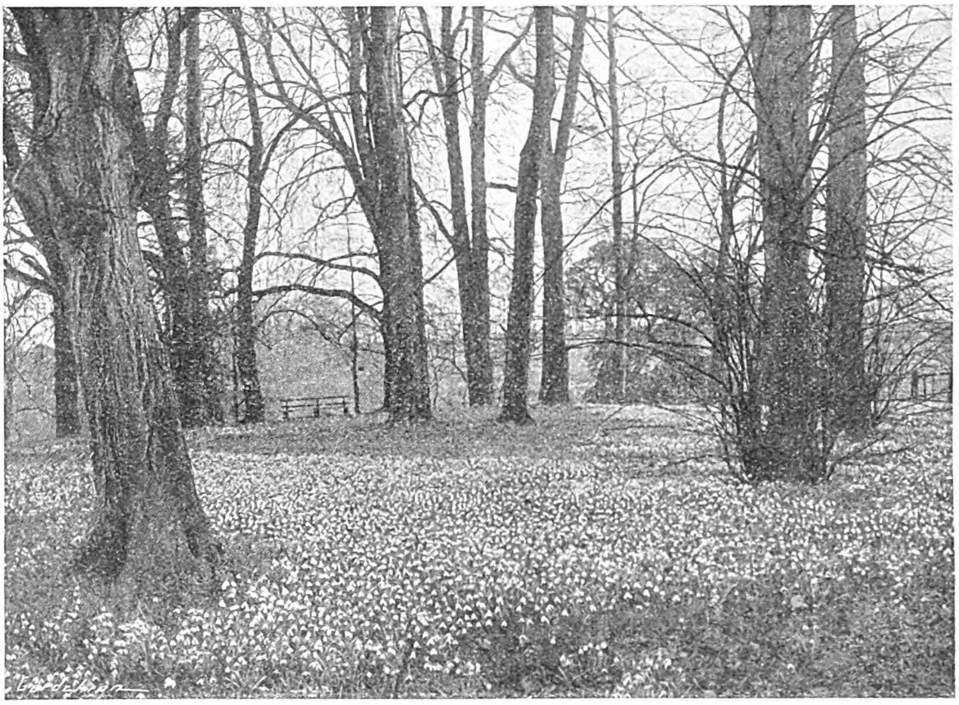


FIG. 100.—SNOWDROPS AT WICK HOUSE, BRISLINGTON, BRISTOL.

(see p. 210).

Publications Received.—*The New Alphabet of Gardening*, by T. W. Sanders, Illustrated; W. H. and L. Collingridge, 148, Aldersgate Street, E.C.1; price 5/- net.—*The New Dictionary of Gardening*, by J. W. Morton; W. Foulsham and Co., Ltd., 10, Red Lion Court, Fleet Street, E.C.4; price 2/- net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Calanthe.—The different species and hybrids of the vestita section of Calanthe will need re-potting when the new growths are a few inches high and are about to develop fresh roots. In removing the pseudo-bulbs from the pots the exhausted soil should be shaken out and the old roots cut off, leaving them about an inch long, to hold the plant firmly in the new material. Whilst out of their pots, the plants should be thoroughly cleansed, as they are subject to attacks of scale insects, which, if allowed to spread, do irreparable harm. In doing this care must be taken not to injure the young growths and roots. If it is desired to increase the stock of any particular variety, remove the back pseudo-bulbs, which may be placed in a pan on damp moss; many will form new growths, and they may then be potted in the same manner as the previous year's pseudo-bulbs, with the new growth in front. Calanthes enjoy a richer and more retentive compost than most Orchids, but water must pass freely through it, therefore ample drainage material should be used.

Repotting.—A suitable compost for Calanthes consists of three parts good fibrous loam, broken up roughly, and one part Osmunda-fibre cut into moderately fine portions and with all the earthy particles removed; a quantity of dried cow manure crushed small, some bone-meal, and sufficient coarse silver sand to render the compost porous. These materials should be mixed some little time before they are required for use, and warmed through. The pseudo-bulbs may be potted either singly, or two or three in a pot; it is usual to place them singly in five-inch pots, but if house room is limited, three or four pseudo-bulbs may be placed in a six-inch pot. Press the compost with moderate firmness around the base of each pseudo-bulb, and keep the soil about an inch below the rim of the receptacle to allow room for applying a top dressing of rich material when the new pseudo-bulb is forming. Supply water sparingly until the new growths have rooted freely. So soon as growth becomes fairly active give the plants frequent and liberal waterings at the roots. These Orchids should be grown in plenty of heat and atmospheric moisture, but not exposed to too much bright sunshine, as their foliage is easily scorched, especially when the plants become dry. Calanthes may be grown in an ordinary plant stove or even in a Cucumber or Melon house. The late-flowering varieties of C. vestita, such as C. v. Regnieri and its varieties, which are at the present time in flower, may be treated precisely in the same manner as C. bella, C. Veitchii, C. Harrisii, C. Sedenii, and the different varieties of C. vestita which are now past their flowering season, and to which these remarks apply.

THE KITCHEN GARDEN.

By R. H. Crookford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Vegetable Marrows.—A few seeds of a small-growing variety may be sown now in heat. The seedlings should be kept growing actively either in a house or on a hot-bed in a frame; they will prove useful for furnishing an early supply of Marrows. The plants should be grown in good loam, to which a small amount of old Mushroom-bed manure should be added. Ventilate the house or frame whenever the weather is favourable, and do not coddle the plants or mildew will appear. Should this disease be detected, dust the affected parts with flowers of sulphur.

Dwarf Beans.—If heated frames are available more of these Beans may be sown for a succession to those growing in pots in the houses. Do not crowd the plants, or the crop will be poor, and the pods small. When the plants are growing rapidly advantage should be taken of warm days to use the syringe freely. Close the frame early to conserve as much solar warmth as possible. Feed the roots with liquid manure as advised for those growing in pots.

Broad Beans.—Plants growing in pots should be planted out on well prepared ground. Draw a little soil near to the stems, which will give the plants slight protection and support. Should the position be very exposed, place evergreen branches alongside the rows to ward off cold winds. More seeds should be sown for succession until about the middle of April. Green-seeded varieties are generally most appreciated and are best for sowing now.

Celery and Celeriac.—The present date will be found suitable for sowing seeds for the main batches of these useful vegetables. Sow the seeds thinly and take great care that the plants do not experience a check at any time. So soon as the earliest-sown seedlings are ready, they should be pricked out into boxes or frames in good soil, consisting of three parts loam, one part old manure, one part leaf-mould, mixed with a little burnt refuse and a sprinkling of soot. Allow the seedlings plenty of space so that they may grow sturdily. Keep the young plants dusted with old soot and maintain a close watch for pests. Green fly is often troublesome, and when it appears the young plants should be sprayed with Quassia extract about every week or ten days. The specific will make the leaves distasteful to the aphides and also keep the Celery-leaf mining maggot in check. Sow again in about a month's time for the latest supply.

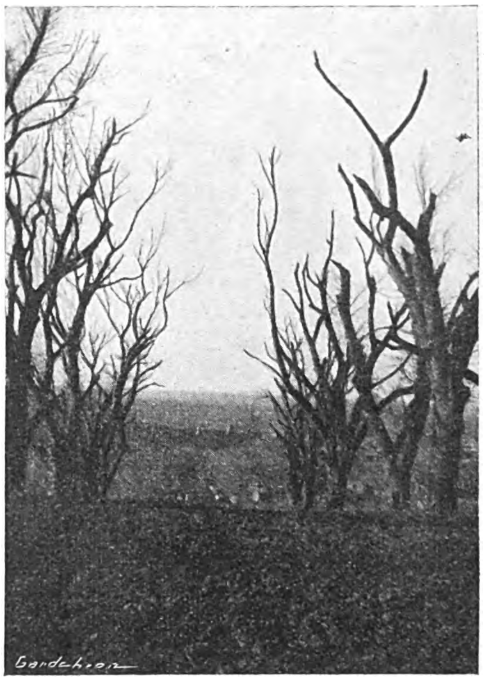


FIG. 101.—THE LIME TREES OF BOURLON WOOD IMMEDIATELY AFTER THE WAR.
(see p. 211).

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Gesnera.—The Gesnera is a useful plant for the decoration of the stove house, and if started into growth sufficiently early, it may be used when in flower for conservatory decoration. Gesneras thrive in a light, rich compost, which may consist of loam mixed with fibrous peat and dried cow manure that has been passed through a sieve, with a liberal quantity of sand and broken charcoal to render the compost open and porous. These plants require a stove temperature during their growing season. The number of roots required for each pot will depend on the size of the specimen best suited to the growers' requirements; they may be grown singly in forty-eight-sized pots, or several may be placed in an 8-inch pot. If placed direct in the larger-sized receptacle, very careful watering is necessary or the compost will become sour before the roots have entered it freely, but when well-established they enjoy an abundance of clear water alternated with liberal supplies of liquid manure, and they need plenty of atmospheric moisture. So soon as the plants show signs of active growth they should be grown near the roof-glass. It is not wise to syringe the downy leaves or the foliage will become discoloured.

Stock Plants.—During the next two months cuttings of various subjects should be inserted, among them Eranthemums, Peristrophes, Salvias, Plumbago rosea, Eupatoriums, Bouvardias and Clerodendrons. I strongly emphasise the importance of obtaining the best cuttings. It often happens, especially where growing space is limited, that after these plants have finished flowering they are placed in some odd corner or stood under the stages, where there is insufficient light for them. This naturally results in weak, spindly growths, which are not suitable for affording the best cuttings. Stock plants should be encouraged now to make strong, healthy shoots suitable for propagating purposes.

Azalea indica.—As these plants pass out of flower all the old flowers should be removed and, if possible, they should be stood in a warm house and kept well syringed to induce them to break into new, healthy growth.

The Conservatory.—At this season of the year an abundance of material is available for the embellishment of the conservatory. With the lengthening days the sun is gaining more power, and to prevent the bleaching of the colours of the flowers the plants should be shaded from bright sunshine. Continue to feed Arum Lilies, Cinerarias, Primulas, etc.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Frame Melons.—Where this method of growing Melons is adopted, the present is a good time to commence preparing the materials and building up a substantial bed of stable litter and leaves. Make the bed solid, and when the heat of fermentation declines to 80°, introduce a small quantity of suitable compost and sow a few seeds in three-inch pots. Admit a little air at the back of the frame to allow the rank gases to escape. Cover the frame with mats at night, and if the temperature of the frame is not near 70° in the morning, add fresh fermenting material as external linings.

Spring Cucumbers.—The earliest sown plants are making rapid progress. A very important detail in the management of spring-sown Cucumbers is getting the plants into their fruiting quarters before they become root-bound. This may be attained by commencing operations for planting in the Cucumber house when the seeds are sown, to ensure that the heaps of soil will be warmed through. As each plant ascends the trellis, pinch the laterals at the first joint, and the point of the plant two feet from the top of the trellis. By this check extra sap will be diverted to the side-growths, but unless the demands are pressing, only allow one or two fruits to mature on each plant until it is well established. Whilst aiming at full crops of fruits, never allow the plants to carry more than they can mature; train the shoots thinly and pinch the fertile laterals at the first joint beyond the fruit to prevent unnecessary crowding. When the plants reach this stage a mild bottom-heat from fermenting materials is an important factor; they will then respond to a temperature of 66° to 70° at night, and 75° to 80° by day, with 5° to 10° higher after closing the house, with sun warmth and atmospheric moisture. Retain a few male flowers for fertilising purposes. For the present, damp the walls and other bare surfaces with warm water in the morning, reserving direct syringing with warm soft water, or clear soot water, for the time when closing the house in the afternoons.

Pot Vines.—Vines growing in pots should not be allowed to suffer for want of water as the berries approach the ripening stage, or even when the Grapes are ripe. If the vines are heavily-cropped and it is doubtful whether the berries will finish to perfection, a little extra air, and a gradual lowering of the night temperature, supplemented by liberal feeding with clear liquid manure and soot water warmed to 85° will help to bring about the desired result. The walls and floors should be damped regularly on fine days, and fire-heat must be equal to the maintenance of a free circulation of warm air throughout the colouring stage. As the weather gets warmer and the Grapes become fit for use, both the day and night temperatures should be lower, and clear water only should be used at that stage.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Grafting.—When the sap is well on the move and the bark parts freely from the wood of the trees to be grafted, the scions may be inserted. Grafting offers a ready means of propagating new varieties quickly, also of working good sorts on to trees of worthless varieties. Healthy stocks should be selected for grafting, and the best and most useful varieties chosen as scions. If the trees have not been headed back do not be too severe in this respect; better and more profitable trees may be obtained in less space of time, if the stumps on which it is intended to insert the scions are left two or three feet in length. In dealing with large branches, crown grafting is the simplest method and the one usually adopted. Two or three scions may be inserted on some of the cut back stems, but on the smaller ones fewer will suffice. Take care that the scions are fresh and plump and of a medium strength. Cut a slit three inches long in the stock; take a scion about six inches long, with good buds at the top, make an oblique cut at the bottom about the same length as the cut in the stock, then raise the bark and insert the graft between the bark and the wood. When the scions are inserted bind the two together with broad raffia, and cover the seat of the union with prepared clay or grafting wax.

Whip Grafting.—This system of grafting is mostly adopted in nurseries where there is a large call for young trees, and is not so much practised in private gardens as crown grafting. Young, healthy stocks should be cut down to the height required and the grafts prepared, fitted on to the stock, bound with some soft material and covered with grafting wax.

Nuts.—Nut bushes have developed plenty of catkins and promise well for a good crop. In some gardens where there are only a few bushes the pruning of them may have been deferred until the flowering period is over. This work should now receive attention. The main point to be observed when pruning is to keep the cordon-like branches well-clothed with sprays of fruiting wood, and to remove all soft growths and suckers.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Dahlias.—Where the old tubers have been introduced to a warm house for propagating purposes, plenty of cuttings should now be available; the latter should be secured when they are three to four inches in length for bedding purposes. Old tubers give the best results for this purpose, as they commence to flower earlier, and do not grow so grossly as young plants. Where there is sufficient stock of old roots for the purpose they should be divided and placed in suitable-sized pots. To facilitate this, the tubers may be partly cut back. When dividing them care must be taken to see that there are dormant buds on the crown of each piece. When the plants are potted they should be stood in cold frames, and afterwards hardened gradually. Many good varieties prove very troublesome to keep from year to year as they either fail to make tubers, or what growth they do make is so small that it is difficult to keep them over the winter. The only way to get over this difficulty is to grow a stock of pot tubers sufficient for the purpose.

Ivy.—The trimming of Ivy is often neglected for several years, which is a mistake, as it gets out of hand and becomes filled with dead leaves and rubbish. If trimmed at this date, all the rubbish will be got rid of, and fresh leaves will soon form.

Calceolarias.—Calceolarias growing in cold frames and intended for summer bedding, should be lifted and placed in suitable-sized pots.

Sowing New Lawns.—It is important to sow grass seed as early as possible in order that the young plants may be well established before dry weather sets in. After carefully preparing the ground by rolling and raking to obtain a fine surface tilth, scatter the seeds on a calm, dry day. In making new lawns from seed it is a great advantage if the ground is prepared during the autumn; this allows plenty of time for the soil to become settled, and seeds of weeds will have germinated and can be removed before sowing the grass seed in the spring. Reliable seed houses will supply suitable mixtures for any particular soil or purpose; it is always wise to state whether Rye grass should be included or not, and care should be taken not to include Clover for playing lawns.

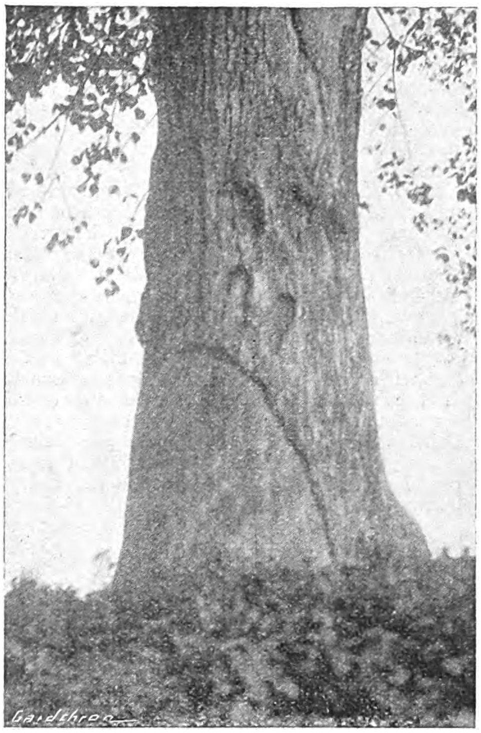


FIG. 102.—ONE OF THE BOURLON WOOD LIME TREES, SHOWING SUCCESSFUL TREATMENT OF WOUNDS CAUSED BY SHELL FIRE.

(see p. 211).

Mowing.—Lawns should be rolled and swept before mowing is started, for it is very unwise to spoil new or newly-sharpened machines at the beginning of the season. The care of mowing machines is very important, and they should always be in charge of a competent workman; this especially applies to motor-mowers, which, in the hands of an incompetent workman may prove very expensive in upkeep.

Pampas Grass.—There are several varieties of the Pampas Grass, which is very effective as a lawn specimen or for grouping with other foliage plants. It is also very effective associated with bold groups of the stronger-growing, late-flowering varieties of Kniphofias. The clumps may be divided and replanted at this date; those that are not divided should be closely trimmed over.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Strawberries.—Where Strawberry plantations were not made in September, and additional quantities are necessary, they should be formed at an early date. Strawberries should not be allowed to flower the first season. The soil between the rows should be kept well cultivated, and the plants encouraged to grow freely, removing all unnecessary runners, so that they will produce a full crop of fruits in their second season.

Melons and Cucumbers.—The main batch of both these crops should now be sown, as sun-heat should be available to keep the houses sufficiently warm, with the help of a little fire-heat during the night. The night temperature should be maintained at a minimum of 65°, rising in the daytime to 80°, and the plants kept growing without a check. Copious damping and syringing frequently among the plants is the most effective way of keeping insect pests in check. The beds intended for the reception of the plants may now be formed, using good, turfy loam, with the addition of wood-ash and bone-meal for the Melon bed, and in that for Cucumbers a proportion of well-decayed manure. Allow plenty of room for frequent top-dressings later, as the plants require more soil. The Melon bed should be trodden or rammed firmly to encourage short-jointed growths, and a layer of fermenting materials placed underneath; it will prove of great value in conserving moisture. Two seeds of either Melons or Cucumbers should be sown in a three-inch pot, and when it becomes evident which is the stronger plant, the weaker one should be removed.

Violets in Frames.—These plants have nearly passed their useful stage, and as others in beds and borders out-of-doors are providing plenty of flowers they may be cleared from the frames which will be useful for a variety of bedding plants now demanding more room. Plantations of Violets should be made on a partially-shaded border, where the soil is in good condition, and liberal supplies of soot should be forked into the ground as it is being made ready. The old plants should be divided carefully, retaining only the best portions. Incorporate a quantity of old, sandy potting soil in the ground so that the roots may develop freely at once. Should the weather prove dry, water the plants liberally once or twice, after the sun has passed for the day. The further cultivation of the plants consists in keeping the soil stirred occasionally and the removal of all runners or side-shoots that are not required.

Onions.—Autumn-sown Onions have wintered very well, and they should be transplanted to their summer quarters. As these Onions are greatly valued for early supplies, they should be planted more closely than is usually recommended, so that every alternate plant may be taken out first, thus leaving the remaining crop plenty of room to mature.

Broccoli. — The winter and early spring varieties are over, and the ground occupied by the plants should be cleared of the stumps and manured according to the crop it is intended for; if for Potatos or another root crop it will not be necessary to add farmyard manure, but a compound of superphosphate of lime, potash and sulphate of ammonia. Later Broccoli are looking extremely well, having passed through the winter here with scarcely a leaf browned; these should be looked over at frequent intervals whenever frost threatens, and the curds covered. Purple-sprouting Broccoli is a most useful crop during the spring, when fresh vegetables are scarce.

FLORISTS' FLOWERS.

PANSIES AND VIOLAS.

WHERE a large display of flowers is required in the spring and early summer, there are few plants to equal the Pansy and Viola. They have a use in gardens the extent of which has not even yet been fully realised, especially amongst amateur gardeners. Those who have a cool, moist, half-shaded border may have these flowers in full beauty the whole season through, but on warmer and drier soils their season of flowering is more limited. Neither the Pansy nor the Viola is grown so extensively in large, private gardens as it was twenty or thirty years ago, but both are planted largely in public parks and small gardens. These flowers do not grow to such perfection in the south of England as they do in Scotland and the northern counties of England, but in cool, moist situations they give a good return for their outlay.

I do not propose to deal with the show Pansies beyond stating that to have the individual blooms in perfection, the plants must be highly fed.

Seedling Pansies are eminently favoured by those who like bold, showy flowers, let the markings or colours be what they may. What becomes of all the Pansies taken into Covent Garden is a problem; these Pansies are sold when in bloom, hence the necessity of removing the plants from their beds at the very time they are expanding their flowers. Continental varieties are remarkably striking in their colours and markings but they do not appear to possess the vigorous, tough, compact habit of our English varieties, being apparently of taller and sparser growth. The large fancy type has raised the standard of quality considerably, and hawkers experience no difficulty in disposing of them. yet the beauty of bedding Pansies and of all the Viola race lies not in their large size but in their colour, form and delicate odour. It is obvious, however, that to keep the plants true to type and uniformity of growth and colour they must be propagated by cuttings or division. Seedlings grow stronger and flower more freely than plants raised from cuttings at half the cost, but those who find it difficult to raise seedlings can buy plants to bloom at almost any season of the year from the best Scotch and English growers who make a speciality of them.

Superb strains of Pansy and Viola seeds may be purchased from the same growers, and seedlings come fairly true to colour. If the seeds are sown in a cool house or frame at this season of the year, or later, the seedlings will be strong enough for pricking out during the summer and should be moderately strong in the autumn for planting: there will be little danger of injury from frosts, although it is wise to have a few plants in reserve to replace failures. *F. Jordan.*

INDOOR PLANTS.

POINSETTIAS.

IN northern India the popular Poinsettia is used for many purposes, but chiefly to brighten gardens during the dullest time of the year, when there is little else but Chrysanthemums in bloom. When planted in groups on slightly elevated ground, the Poinsettia forms in a few years a large, spreading bush or shrub ten feet to twelve feet high, and when in bloom is one of the most gorgeous objects conceivable. As it forms bracts and flowers on the wood of the current year, it is necessary to cut the growths back to two or three buds from the base after flowering. The stems removed are cut into lengths of six or eight inches and inserted in sand, either in the open or in pots, for no plant strikes more readily from this kind of cutting.

Judging from the "follow my leader" habit at home, there is much to be learned before Poinsettia cultivation becomes of real commercial value. Although Poinsettias revel in heat during the summer months, they are far from being as delicate as the average gardener considers them. For many years it has been customary at home to wait until young growths appear before obtaining cuttings, and frequently a a large percentage of these cuttings die, and many plants are weaklings from start to finish. Why not, before destroying the old stems, use them for propagating? If they are healthy they will give far better results. Again, rather than throw the old plants away, which again is customary, why not pot them up at the time of new growth, and so increase the number of flower heads per plant?

Poinsettias should not be coddled at any time but kept in the open air so long as possible, even into the month of October. If the plants are well-grown, strong and sturdy, they will almost look after themselves, provided protection from actual frost of more than 2° is given.

It is a common sight in the Punjab during January and February, when the cold winds are beating down from the snow-covered ranges of the Himalayas, and when actual ice is visible near by, to see thousands of these gorgeous plants thoroughly happy in their surroundings with only the partial shade afforded by a few overhanging branches of trees. It is only natural, when coddled in stove heat at the very time when they least require it, the leaves and bracts become so tender that the least breath of cool air makes them flag, and therefore useless for any other purpose than hot-house decoration.

Poinsettias are very obliging plants, as their requirements are few. They dislike too much water, so that ample drainage is necessary: a mixture of sandy loam with a little leaf-mould added is an ideal rooting mixture. I hope some gardeners, before throwing away their old plants, will try cutting up the stems in six-inch lengths, severing them below the joints as is customary with woody cuttings; lay them aside until the milky sap has dried up, and then place them in five-inch or six-inch pots, in quantities of six or eight, in an open compost. To prevent the soil drying unnecessarily quick, I would recommend each pot be placed within another empty pot a size larger, filling in the space with moss or soil. After a year's growth and the plants have again been cut down, they should become in the second year a batch of sturdy, shrubby specimens, particularly if they get no warmer quarters than a warm greenhouse, and certainly no stove heat. *George Burrows, Eastbourne.*

BULB GARDEN.

SEEDLING SNOWDROPS.

SOME time ago (April 19, 1924, May 2 and 16, 1925, and January 30, 1926) a keen correspondence took place in your columns concerning the seeding of Snowdrops. I am not sure whether the writers arrived at a satisfactory conclusion, but I send you three seedlings to emphasize the fact that Snowdrops produce viable seeds, and that seedlings may be raised without much trouble. In April, 1926, I gathered some of the green pods of Snowdrops and placed them at once in a three-inch pot, which I plunged in the soil close to the parent groups. Several seedlings appeared, as noted above.

I also enclose a photograph of Snowdrops (Fig. 100) growing at my former home at Wick House, Brislington, near Bristol—now a home for friendless children. I remember quite well that we were not allowed to pick many blossoms, the idea being that so many as possible should produce and scatter their seeds and thus increase the size and density of the display. My own Snowdrops are from bulbs of this old and charming colony of "fair maids of February." *(Mrs.) Sarah Thatcher, Manor House, Chew Magna, Somerset.*

CRINUM POWELLII.

THIS beautiful hybrid between C. longiflorum and C. Moorei is quite hardy in the majority of gardens. It requires a position in full sun so that complete ripening of the foliage is assured, for on this the successful flowering of the bulb largely depends. An ideal situation for this handsome Crinum is a border at the foot of a south wall, where the plants will receive the full benefit of the sun, and be sheltered from cold winds.

The border should be well-drained, and a good depth of rich, rather light soil, forms the best planting-medium. It must be remembered that Crinums are gross feeders, and that once established, they are not disturbed for many years; it is therefore desirable to work into the soil some well-rotted stable manure, and a quantity of coarse bone-meal. Planting may be done from March to May. The bulbs are large, and they should be planted with their tips eight inches or nine inches below the surface to ensure the bulbs not being injured by severe frosts.

Established plants amply repay good cultivation; during the summer they should never be allowed to suffer from lack of moisture at the roots, while the frequent application of liquid manure will be found exceedingly beneficial.

The flower stems are three feet or four feet in length, and each bears about eight rose-coloured, wax-like, tubular flowers during August. The white variety, album, flowers a little later than the type; the variety intermedium is of a pale rosy colour. *T. H. Everett.*

FLOWER GARDEN.

PYROLA ROTUNDIFOLIA.

THE Winter Green is a native plant, but is so uncommon and localised that few are familiar with it in its natural haunts. Its tufts of rich, green leaves and graceful, Lily-of-the-Valley-like racemes of white, waxen flowers, render it beautiful, both in foliage and flower; whilst an additional attraction is the sweet scent of the blossoms. The flower-spikes attain a height of ten inches or twelve inches, and appear from June to August.

Pyrola rotundifolia is not difficult to establish in the garden if a little thought and care are exercised in choosing a situation for it. It is most important to plant good, strong clumps; scrappy pieces often only end in disappointment. It will succeed in light, woodland soil on the outskirts of a shrubbery; a cool root-run being essential. A partly-shaded rockery also forms an ideal situation for this native gem. *T. H. Everett.*

MIMULUS GLUTINOSUS.

MIMULUS glutinosus or, as it is sometimes known, Diplacus glutinosus, is a greenhouse shrub, and though not often used as such, it makes a very good bedding plant. It flowers freely all through the summer, and the colour of the flowers draws attention to it at once; they are of a rich salmon shading to buff.

The plant is easily raised from cuttings inserted either in spring or autumn; if rooted in August they make fine plants by the following bedding-out season.

The method I employ is to root three cuttings in a small pot under a hand-light in the greenhouse in August, and when rooted, pot them singly and stake the young growths to the required height. This Mimulus may be grown on to form large specimens, as the plant does not become bare of foliage at the base. I have grown it to good effect over a groundwork of Viola Admiration, with which it forms a pleasing contrast. *George Mackenzie, Cranmer Hall Gardens, Fakenham, Norfolk.*

ALPINE GARDEN.

PRIMULA SUFFRUTESCENS.

SHRUBBY Primulas are not common; they include the subject of this note, a species whose native habitat is the heights of the Central Rocky Mountains. I have not found the plant difficult to cultivate, but it has a habit of dying off in patches, which rather hinders its development.

In a gritty, well-drained loam enriched with leaf-mould, and an open situation, in these gardens, P. suffrutescens has done tolerably well for some years.

In early summer it sends up loose clusters of rosy-carmine flowers with a yellow eye, these being held on slender stems well above the foliage.

The habit of the plant is more or less prostrate, the stout, brittle, green branches terminating in rosettes of long, narrow, dull green leaves which widen to their rounded and toothed extremities. Frost seems to have no ill effect on P. suffrutescens, but winter dampness is doubtless one of its troubles. *A. T. J.*

SYNTHYRIS RENIFORMIS.

This is a dainty and interesting dwarf-growing hardy perennial with blue flowers borne on racemes or spikes from five inches to nine inches high. The plant is admirably adapted for the cooler or partially-shaded corners of the rock garden. It forms a close, compact tuft of dark green foliage of neat habit and flowers during early spring. It may be propagated by division. *L.*

TREES AND SHRUBS.

GREVILLEAS.

Though classed as half-hardy shrubs Grevillea rosmarinifolia and G. sulphurea are much more resistant to frost than many gardeners realise. My specimens were not affected by 20° of frost last winter and I know of plants in a north-west country garden, 800 feet above sea-level, which have proved equally hardy.

The species enumerated grow to about six feet tall, but they are usually seen as shrubs of about half that stature. The foliage of both species is evergreen; dark green in G. rosmarinifolia, and a paler shade in G. sulphurea. The former bears racemes of bright, rosy-red flowers, whilst those of the latter are of a golden-amber tint.

Here, in the west, the bushes generally begin blooming in autumn. They continue to flower during mild intervals throughout the winter, and are at their best in spring. Our plants are associated with Heaths on an open woodland slope, where the soil is light and poor. These Grevilleas make very pleasing wall shrubs, and should be grown in this way where the winters are very severe. *A. T. J.*

BUDDLEIAS.

The genus Buddleia contains many interesting shrubs which are of the easiest cultivation. They grow best in a rich, loamy soil and a sunny situation, but they will succeed in less favoured positions, and flower freely if they are pruned regularly. Propagation is effected from cuttings or seeds; cutting should be resorted to if it is desired to increase a specially fine type, as some species vary considerably from seed. The long, purple spikes of B. variabilis and B. v. Veitchiana are well-known to all lovers of shrubs, likewise the later-flowering variety, B. v. magnifica. Attention of intending planters is drawn to the merits of that distinct and little-known species, B. alternifolia. This is an introduction of the late Mr. Reginald Farrer, and is so distinct in every respect from the other members of the genus that it is worthy of more notice from lovers of good shrubs than it has received. B. alternifolia is a slender-growing shrub, with small, linear leaves, having long, drooping shoots, giving the plant the effect, in the distance, of a Weeping Willow. The period of flowering is during late May and early June, long before the members of the variabilis type are in bloom. As the flowers are borne on the previous year's wood, it follows that the pruning should be done immediately the plant has finished flowering.

The blooms are small and produced in such profusion that the long, slender shoots are entirely studded with them, giving the whole plant the appearance of a fountain of flowers, which are delightfully fragrant. For a group in a sunny position on the lawn or for mingling with other shrubs, it is unsurpassed in its season. As this species varies in colour considerably from seed, if a specially good form appears it should be increased by cuttings of half-ripened wood, which will root freely.

Buddleia Colvilei, which is probably the handsomest species of the genus as we see it flourishing in the milder districts of the country, is worth trying under the protection of a wall in less favoured parts, as it is a handsome plant with large leaves and long, drooping panicles of rose-coloured flowers.

B. nanhoensis is a dwarf form of the variabilis type, and is valuable where space is limited. This is also a most variable plant from seed, and only the best forms should be perpetuated.

B. globosa, a native of Chile, is an old plant, having been introduced so long ago as 1774. It is quite hardy in most districts. The flowers are orange-yellow and sweetly-scented.

All the varieties of the B. variabilis section flower on the young wood, therefore they should be pruned hard back in spring. If they are allowed to grow at will they soon become straggling bushes with weak wood and poor panicles of flowers.

B. alternifolia should be pruned so soon as the flowering season is over to encourage the development of long, graceful shoots, which will flower the following year. *F. W. G.*

HISTORIC LIME TREES AT BOURLON WOOD, FRANCE.

An interesting example of tree surgery and preservation is to be seen at Bourlon, France, on one of the Canadian Battlefield Memorial sites, situated about nine kilometres from Cambrai, just off the Cambrai-Bapaume road.

The site marks an eminence above the village of Bourlon. Carved on a massive block of stone is the following inscription: "The Canadian Corps on 27th September 1918, forced the Canal du Nord and captured this hill. They took Cambrai, Denain, Valenciennes and Mons, then marched to the Rhine with the victorious Allies." The site has been planted with a variety of shrubs and trees, but a feature of very great interest is a short avenue of twelve old Lime trees, apparently Tilia vulgaris.

It is said that these trees were planted by soldiers of Wellington's army in front of trenches made during the "occupation" after Waterloo. It is recorded that Wellington was in Cambrai, and used to visit the Chateau at Bourlon.

The French authorities asked that special care might be taken to preserve these historic trees. This work came under the supervision of Lt.-Col. Malcolm Ross, D.S.O., the Landscape Officer who was responsible for the designing and planting of the various Canadian Battlefield Memorial sites. The condition of the trees (Fig. 101) was very parlous indeed at the close of the late war, there being large cavities in the trunks and shattered branches, the result of shell fire. Shortening of the main branches and cleaning the cavities took place during the autumn of 1921 and spring of 1922.

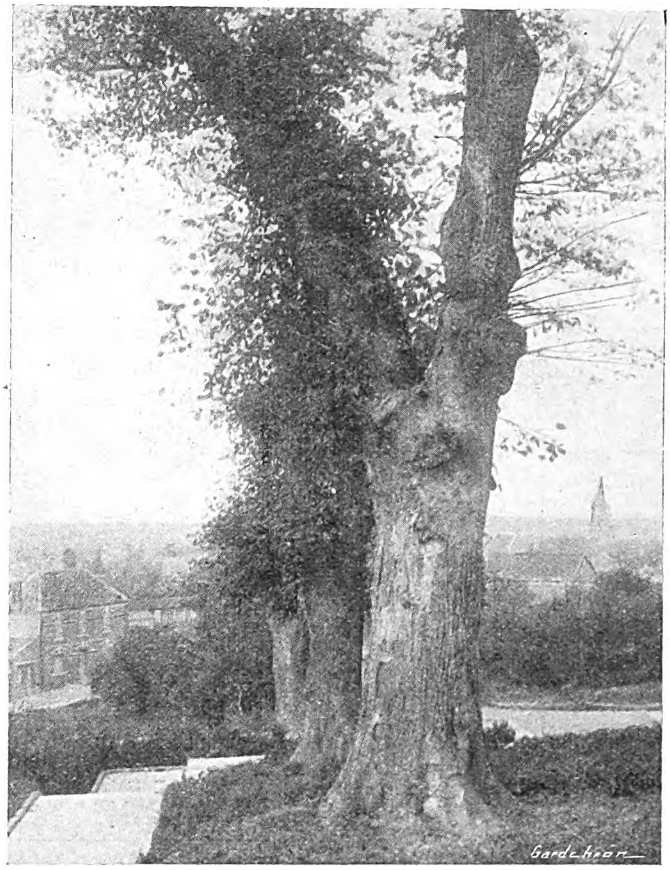


FIG. 103.—LIME TREES OF BOURLON WOOD (AFTER TREATMENT) IN 1926.

The cavities, some of them a yard across, and of considerable depth, were treated with copper sulphate solution after being cleansed, and then filled with cement, the surface of which was roughened and touched with paint to conform more closely in appearance with the natural bark. Fig. 102 shows a large wound which was so treated. Suckers, freely produced, were removed and new ones prevented from developing. Fig. 103 shows one of the trees as they appeared in the autumn of 1926 with a considerable amount of young growth.

New bark is visible here and there, but it is not expected that the larger wounds will heal over completely. The trees are too old and shattered for such extensive growth to take place, but it is hoped that new bark will develop sufficiently to form an airtight joint over the edge of the concrete. The work which has been done, supplemented with periodic attention, should ensure the preservation of these noteworthy specimens for many years to come. *A. B. M.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

A REVISION OF VIOLAS.

THE Section on Violas in Vol. 2 of *The English Rock Garden* is the most complete presentation of the family that has been published in English. It comprises notes on some 130 species and varieties. Shortly before the war, Mr. Irving wrote that there were about 200 known species of Violas, of which about fifty were in cultivation, mostly in botanic gardens. To-day it is correct to state that there are approximately 450 known species of Violas, of which, perhaps, upwards of 130 are in cultivation, mostly not in botanic gardens, but in professional or amateur gardens throughout Europe and the United States. It is also safe to state that some, if not many of the best Violets and Violas have not yet been introduced into cultivation in England. Who, for example, has yet seen the magnificent V. pedunculata ?

During the present century a very large amount of research work has been done in the Viola family ; notably by Becker in Germany, and by Brainerd, Piper and others in America. Much of Becker's work as regards European Violas was accomplished before Farrer produced *The English Rock Garden*, but was not incorporated therein. Further, Farrer's account of the American Violets was largely taken, I imagine, from Britton and Brown's *Illustrated Flora*, and does not incorporate the later work of Brainerd. The continuation of research work such as I have described does not make the account of Farrer any the less useful, especially as nothing can supersede the personal touches arising out of inner knowledge with which Farrer's work was illuminated in all cases where he had personal acquaintance with the plant he described. It may, however, be of value to incorporate into the Viola Section of *The English Rock Garden* the modifications arising out of later researches. It is not intended to re-write the Section (which to anyone not similarly gifted with Farrer's vocabulary would be impossible), but to publish notes under each of Farrer's headings as may be necessary. These articles, therefore, should be read in relation to Farrer's paragraphs, and the same headings accordingly are used. Where there is nothing to add, the relative heading will, of course, not appear here.

V. adunca, J. E. Smith, is now to be regarded as a sub-species of V. rupestris. The term "woodlander" is somewhat misleading as though it grows in woods, it frequents dry, sandy places and arid pastures as well as light brushwood. The flowers rise well above the leaves, and are coloured violet-purple, light or dark. The *Kew Handlist*, 1925 shows this wrongly as synonymous with V. canina, an error due to the American botanist Gray. It is a much finer species.

V. aetnensis is not a form of V. calcarata, but should be known as V. heterophylla sub-sp. aetnensis. For V. heterophylla see below.

V. aetolica, Bois. and Heldr., is given by Halacsy as both annual and perennial, like other tricolor Violas. The colour of the type is yellow ; that of the variety heterosepala either all yellow or variegated. The variety takes its name from the fact that the two lower calyx lobes are larger than the others. There is a Viola offered in catalogues under the name of "oetholica," which seems to me to be this variety.

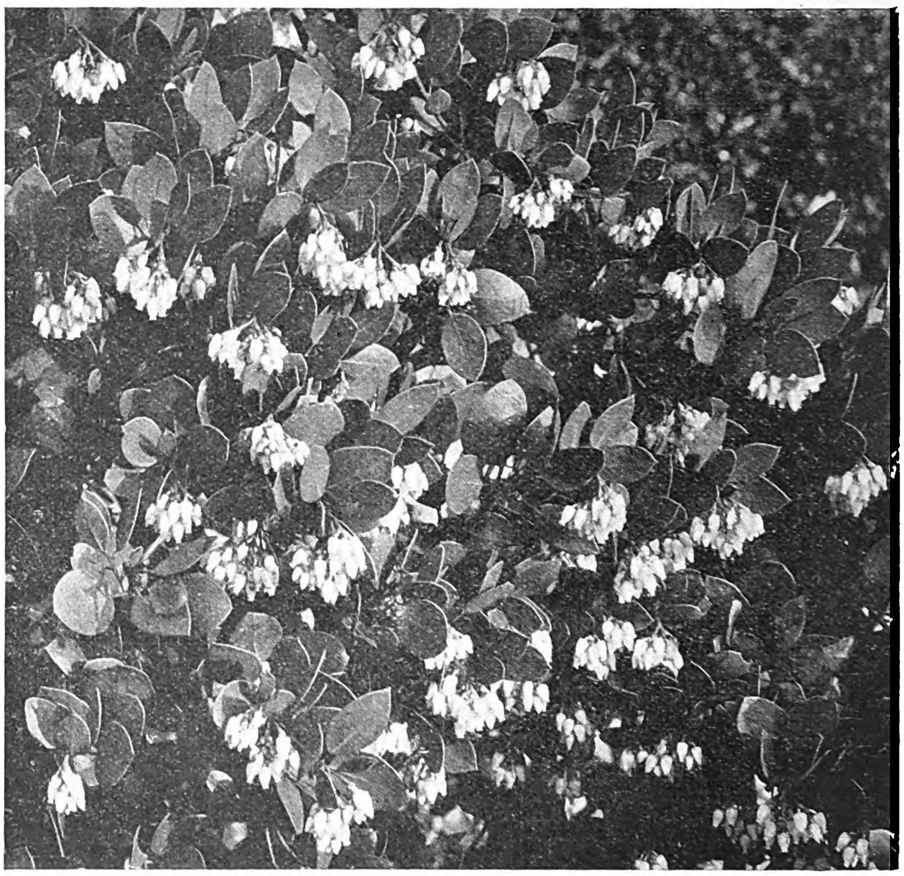


FIG. 104.—ARCTOSTAPHYLOS MANZANITA IN THE EDINBURGH BOTANIC GARDEN.

(see p. 213).

V. alpestris is generally perennial. The typical form is generally yellow or sulphur. The more or less blue form is V. polychroma from Austria.

V. altaica, Ker-Gawl, is not one of the "great great grandmothers of our garden Pansies." Dr. Wittrock, the Swedish botanist, who has given great attention to this matter, states, "Reliable statements prove that dating from 1816 V. altaica, Ker, a native of Siberia and the Caucasus, was cultivated in England. It is more than probable that this species played some slight role in producing some of the Pansies of those days. Several authors have even ascribed so much importance to the part played by V. altaica in the origin of the Pansies that they consider it their real parent. This is, however, in my opinion, a mistake, as, with the exception of bearing large flowers, the Pansies of our century have scarcely a single characteristic in common with V. altaica, and this species seems always to have been—as it still is—a great rarity in European gardens." It is now taken out of the calcarata section and gives its name to a section of its own, which includes V. altaica, V. dichroa, V. arsenica, V. nebrodensis, V. Eugeniae and V. pseudogracilis. It belongs to the whole region between Asia Minor and the Altai Mountains, via the Caucasus. Over so long a line its form naturally varies considerably ; as it approaches the Altai it becomes more luxuriant and has a long spur ; in Asia Minor it is dwarfer and has the short spur that Farrer mentions. The western form has been named V. oreades M.B. It has the largest flowers of any Viola species, sometimes measuring 45 cm. (nearly two inches) across, a diameter only equalled by certain American Violets. It is extraordinary that this species has been, and is, so rare in cultivation, as it is a beautiful Viola.

V. arborescens, L., is much sought after, perhaps on account of its confusion with the so-called V. arborea. It is extremely difficult to account for the name V. arborea. The only trace I can find of the latter name is (1) that of Sieber, the botanist of Cretan species, which is synonymous with V. arborescens ; and (2) that of Forskäl, who published a flora of Egypt in 1775. The latter appears to be identical with V. arborescens from Algeria. This species is purely Mediterranean, and is abundant in its area, yet there seems to be great difficulty in procuring it. I have had it from Cape S. Vincent in Portugal, and from Malaga in Spain (where Mr. Lofthouse recently collected it) ; and under the synonym of V. suberosa it is grown in the Edinburgh Botanic Gardens. V. suberosa should be known as V. arborescens sub-sp. serratifolia. It is the Algerian form, only to be distinguished from the type by the serrate leaves. The species is well worth growing.

V. arenaria ought to be V. rupestris, Schmidt, the name now correctly adopted by the *Kew Handlist*. Becker, in his latest account, states that it is absent from Great Britain ; but I have recently had it from its one station in

Upper Teesdale, sent me by Mr. Lofthouse. The colour of the flowers varies from blue-violet through all shades to white. V. rupestris is peculiar in its distribution, being found low down, as in the Forest of Fontainebleau, near Paris, and as high as 14,000 feet; it is fairly common in Europe; it is found in the Himalaya and Siberia and crosses over to Alaska, whence it descends into the United States until in the mountains of California it varies into V. rupestris sub-sp. adunca. The Viola which is offered in English catalogues as V. rupestris rosea is invariably V. sylvestris; and there is another nursery rupestris which is a garden Viola of the Maggie Mott order.

V. atriplicifolia of Greene should be known as V. purpurea var. venosa. It is an alpine species from the Sierra Nevada mountains in California. *E. Enever Todd.*

(*To be continued*).

out-of-doors at present, and from their habit and attractiveness suggest they would make fit subjects for early forcing for greenhouse decoration.

The early species of Rhododendron are daily adding to the number of flowering shrubs. In the Rhododendron House the tall, tree-like R. argenteum, a native of Sikkim, has again produced some wonderful large blooms. Many inflorescences have fifteen to twenty large white flowers, and each individual bloom, with a purple blotch at the base, is not less than two inches across. It is an imposing picture in early spring. R. Thomsonii, also a native of the same country, when viewed with the sun behind the numerous, glossy, deep blood-red flowers, is a fine sight, while a specimen twenty feet high of R. arboreum is just opening its flower-buds, and will be ablaze with rich crimson flowers in a few days.

Out-of-doors, a very handsome plant of when in flower, are blooming profusely on a high mound at the back of the rock garden. Although common shrubs, they are invaluable for their beautiful spikes of sweetly-scented flowers. Another of the same family, D. Blagayana, is one of our most useful rock plants. Easily propagated by cuttings and planted in a position where sufficient moisture is available, it will produce young growths which, if kept pegged down, will cover a very large area in a short time. Its white flowers are very beautiful and scented.

Spring-flowering bulbs have made rapid progress with the mildness of the season. Crocus vernus and varieties, C. banaticus and others, have brightened up the lawns and side-paths of the rock garden. Around trees in borders such plants as Scilla amoena, S. bifolia, with cobalt blue flowers, are worthy subjects. Colchicum alpinum and Bulbocodium vernum, with their pink flowers, are very pretty. Eran-

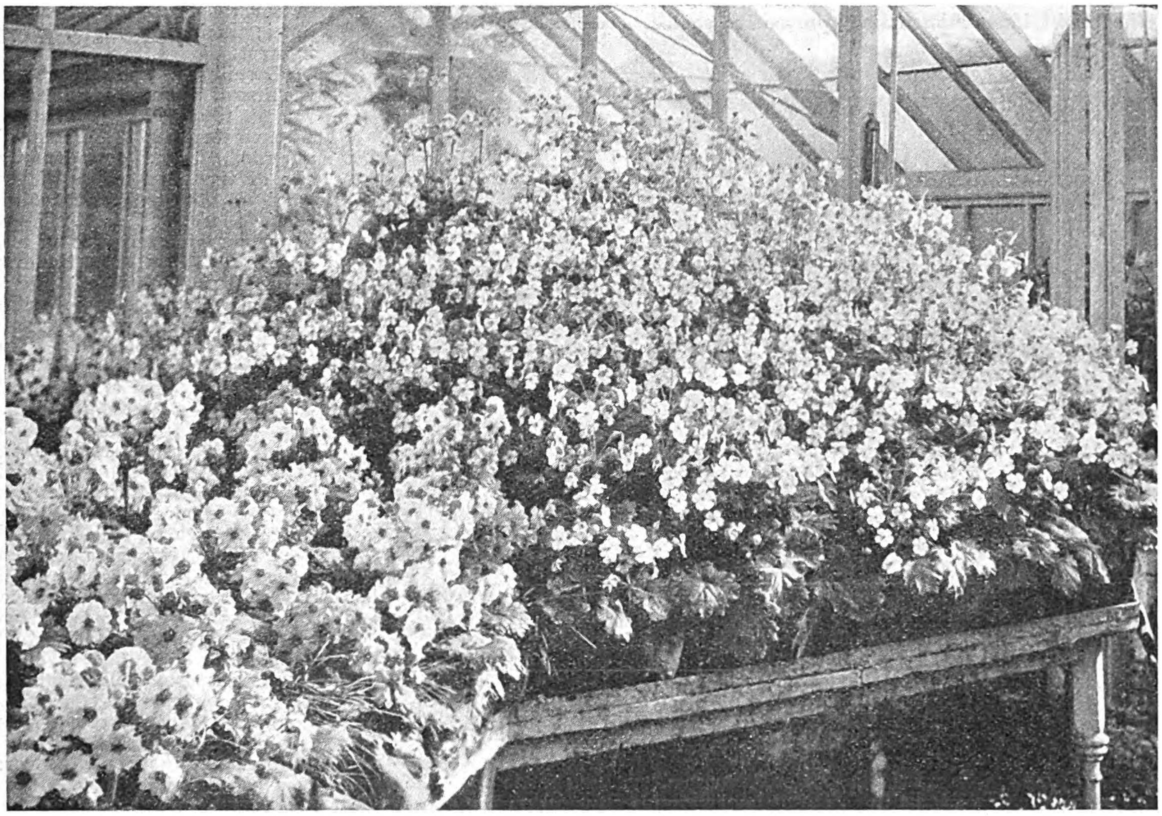


FIG. 105.—GIANT STAR PRIMULAS AT HILLSIDE, READING.

(see p. 215).

NOTES FROM EDINBURGH.

Lengthy periods of sunshine have been a pleasing feature of the opening days of March. Little or no frost has been registered and plants and shrubs out-of-doors have taken advantage of this mild period. Many have excelled themselves in producing beautiful young foliage and handsome flowers. Amongst the most prominent flowering shrubs the Californian Arctostaphylos Manzanita (Fig. 104) may be considered a favourite. Although introduced to this country in 1897 it is not yet a common shrub in our gardens. Perhaps this is due to an erroneous idea that the plant is difficult to propagate vegetatively, but new methods of propagation have shown that cuttings may easily be struck in sand frames about the end of May or beginning of June. The white or pinkish flowers of A. Manzanita, borne in trusses, are very prominent among the dark green, leathery foliage. It is a slow-growing plant and does best in a well-drained position, treated like other members of the Erica family.

Viburnum fragrans, from China, and a Himalayan species, V. grandiflorum, are two of the earliest of this genus. Both are in flower R. Smithii is nearly at its best, with numerous trusses of dark crimson flowers perched on a circle of drooping leaves. This habit shows the flowers to great advantage. A hedge fifty yards long of R. praecox covered with opening flowers was partially blighted by February frosts. The scorched appearance of the top half is somewhat counter-balanced by the countless number of beautiful pink flowers of the under part, and the whole looks as if it had been suddenly put into a fire and quickly drawn out again. One isolated specimen, however, is in full flower from a height of seven feet down to a few inches from the ground. Leafless branches with such a profusion of flowers give it a Peach-like appearance.

In a sheltered part of the border the Japanese R. quinquefolium is clothed with soft pink flowers. It also is still leafless and very unique. R. acuminatum, near by, is somewhat similar in habit, and there is little between them for beauty at this season. The dwarf species are well represented by R. intricatum, a true rock-garden plant. Its small leaves and long, blue flowers commend it as such, and it should be the aim of lovers of the genus to acquire a plant of this delightful little shrub.

Groups of Daphne Mezereum, also leafless this cilicica, with yellow flowers, surrounded by its collarette of green leaves is delightfully at home under the protection of a giant Lime tree.

Iris unguicularis alba, in a sheltered border, never fails to charm with its white flowers, while I. reticulata and the varieties histrioides and Krelagei make the colour scheme complete. *A. McCutcheon.*

NOTES FROM WISLEY.

The majority of the Lachenalias, often known as Cape Hyacinths, which are on trial at Wisley, are now in flower. The varieties sent in are very similar, all having yellow flowers with or without additional red and green colouring. One of the best of the self-coloured varieties is the deep yellow Leiden. The shape of the flowers, however, is not so pleasing as in the case of many other sorts, such as Spa, the blooms of which are suffused with red as also are those of Lachenalia Nelsonii. Red predominates in the flowers of Tipperary, a dwarfer variety with heavily spotted stems, while each bloom of Calcutta is tipped with a broad band of dark crimson. Another variety which is flowering well is Canada, with yellow and pale green flowers. The only break away from the yellow, red and green colouring is seen in L. pendula, which has turned from orange-red to rose-pink.

In the same greenhouse the Freesias on trial have commenced to bloom and to diffuse their pleasant fragrance. Among the yellow-flowered varieties, Buttercup, Daffodil and China, with brown lines on the perianth, are in bloom, while Foretaste is the first of the mauve-coloured varieties to flower.

Many Saxifrages are now in bloom in the rock walls in front of the Laboratory, and of these none looks more attractive than S. Griesbachii. The Wisley form of this plant has a much larger rosette than the type, and the flowers are of a deeper crimson. Some splendid specimens are to be seen in flower in the new Alpine House (Fig. 106), which is now looking extremely well, and patches of vivid colours, such as one associates with a summer herbaceous border, are occasioned by the bright blue Pulmonaria angustifolia var. azurea, Iris reticulata, Morisia hypogaea and rich-hued Primrose hybrids. Among the less conspicuous plants in this house are the rare Androsace pyrenaica, with tiny white blooms, and Primula Loczii, a miniature, pink-flowered Primrose. The pearl-white flowers of Shortia galacifolia are now showing, together with those of Sisyrinchium grandiflorum, which are maroon in colour. An extremely pretty Kabschia hybrid Saxifrage is seen in an unnamed Wisley seedling. The flowers are similar in shape to those of S. Jenkinsii but are bright rose in colour. An attractive yellow-flowered Saxifrage in bloom in this house is S. Borisii.

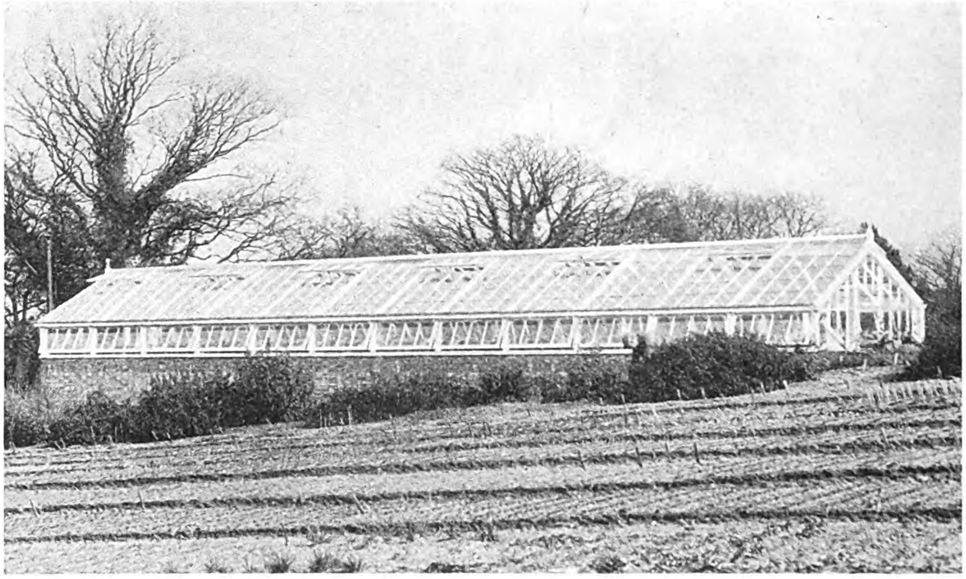


FIG. 106.—THE NEW ALPINE HOUSE IN THE R.H.S. GARDENS, WISLEY.

On the rock garden S. oppositifolia var. splendens and the pale yellow hybrid, Mrs. Leng, are seen to great advantage in flower in the crevices of a recently reconstructed rock face. Most of the varieties of S. Burseriana have now passed their best, but an exception is the late-flowering S. Burseriana speciosa, of which there is a good patch near the top of the rock garden. Anemones in flower include Anemone Hepatica, Anemone blanda and A. blanda var. scythinica, the flowers of which are white except for a blue tinge on the reverse of the sepals.

The borders at the foot of the rock garden are now very gay with Crocuses, Leucojums, Scillas and Primroses, including the Wisley blue variety which has flowered in these gardens ever since it was discovered here by Mr. Wilson, more than forty years ago. Viola odorata, which is blooming very freely, is also a feature of these borders, while in the border in front of the Laboratory Scilla sibirica atrocoerulea, with large, dark blue flowers, is in bloom.

In the wild garden, Rhododendron praecox is flowering exceptionally well and has so far been fortunate in escaping damage by frost. In addition to its own leaves, the dark green foliage of adjoining plants of Rhododendron Thomsonii help to show up to still greater advantage the masses of pink blossom. Comparatively few blooms are to be seen on the yellow-flowered R. lutescens which, however, even at the best of times, is never very liberal with its flowers. Other shrubs in flower in the wild garden include Camellia japonica and Pieris japonica, which, unlike the former, rarely fails to flower well at a time when flowering shrubs are scarce, and although not completely hardy, rarely gets badly damaged by frost when planted in a sheltered spot.

In the entomological department, further trials of new tar distillate washes have recently been carried out in the experimental orchard in order to test their power to kill the eggs of psyllae and aphides. Peach trees have also been sprayed with Burgundy mixture as a preventive against Peach leaf-curl.

Good progress has been made with the new flower trial grounds situated on the site of the old kitchen garden, and the seeds sent in for the trial of annual Poppies have already been sown. *J. R. Grant White.*

STILES.

MOST of the stiles in this country are used by foot passengers to reach a footpath in a private field over which the public have a right of way. In the case of such stiles, the question of whether the owner of the field is under any liability to keep them in repair is always arising, and sometimes the more important question of whether he can be sued in damages for any injury suffered by the users of the stile owing to its being in a defective condition, crops up.

As a general rule, the mere fact that a public footpath crosses a fence by means of a stile does not impose upon the person to whom the fence belongs any liability to repair the stile. Neither does the law impose such an obligation on his tenant. Such a liability may, however, be acquired if the stile has been repaired for the benefit of the public for a number of years, although if the owner or occupier of the field repairs it for his own benefit, however often done, this would not impose any obligation on him to repair it for the public. From this it follows, that if a man is not liable for the repair of a stile, he cannot be made responsible for any injury which may arise owing to its being in a state of disrepair.

The wisest thing to do, therefore, if you have such a stile on your land, is to leave it severely alone, and in all probability when it gets broken or unsafe the local council will see that it is put right. If, however, they notify you that the stile needs repairing, the best course to take is to write and explain that if they want the stile repaired, they are at liberty to come and repair it, at the same time asking upon what authority they have asked you to do the repairs. *H. A. Sharman.*

THE VILMORIN FAMILY.

ALTHOUGH a history of the famous horticultural family of Vilmorin has already been given in several French publications, the following notes, tracing its origin, may prove of general interest.

M. Philippe Victoire Leveque de Vilmorin was the first of the family to enter the seed trade. He was an educated gentleman of Lorraine origin, who married in 1773 Adélaïde d'Andrieux, whose parents had a seed and plant shop on the present site of the head offices of the firm, in Paris, Quai de la Mégisserie, called at that time Quai de la Ferraille. Philippe Victoire became a partner of M. Andrieux, and soon after the latter's death, in 1779, the owner of the firm—which first took the name of Andrieux et Vilmorin—assumed the title of Vilmorin-Andrieux. Philippe Victoire L. de Vilmorin, who was a great plant lover, became acquainted with the leading botanists of his time and did much to improve and distribute good plants, trees, shrubs and bulbs, and to detail the best methods of cultivating them. He was one of the first in France to publish catalogues of seeds and plants; he died in 1804, leaving the business to his eldest son, M. Pierre Philippe Andre Leveque de Vilmorin, who was already a partner in the firm, and took a keen interest in the improvement of cereals, forage plants, trees and shrubs. For experiments undertaken in this connection, he acquired land, both at Verrières le Buisson, for herbaceous plants, and at Les Barres, Loiret, for trees. These estates extended, and the first is probably the largest establishment in the world for the improvement of plants generally, and the selection and production of stock seeds; the second is the principal arboretum in France, now in the hands of the French Government, and used as a school of forestry. It was to M. Pierre P. de Vilmorin that Parmentier's collection of Potatos was entrusted in 1815, by the Société Royale d'Agriculture, and which has been since grown at Verrières. Being deeply engaged in scientific and experimental work, he took partners to assist him in the direction of the seed firm, and it is from that time that "& Co." was added to the title of Vilmorin-Andrieux. He retired in 1843, passing the business to his eldest son, and died in 1862.

M. Pierre Louis Francois Leveque de Vilmorin, born in 1816, was twenty-seven years old when he became the head of the firm. To him the scientific world and the practical growers as well, owe a debt for his systematic studies of heredity in plants, which led him to commence the process of individual selection. His method of growing separately the produce of each selected seed-bearer has since been applied to all sorts of plants. This now well-known method has been and still is of immense importance in the improvement of plants and the fixation of new varieties or hybrids.

Furthermore, the name of Louis de Vilmorin will for ever be associated with the high improvement of Sugar Beet, of which he carried the percentage of sugar, in the strain that still bears his name, to a degree which has been but little surpassed since. His wife, Madame Elisa L. de Vilmorin, assisted him in his experiments and trials, and published the "Monograph of Strawberries" in Decaisne's *Jardin fruitier du Muséum*. She died in 1868.

Louis L. de Vilmorin died in 1860 at the early age of forty-four years, leaving three sons, the eldest of whom became first associated with his mother, then, in 1873, the head of the firm in association with his brother Maurice, the third son, Philippe, having been killed during the war of 1870-71, at Le Mans, on the last day of the war.

M. Charles Henry Louis L. de Vilmorin, born in 1843, carried on still more extensively plant experiments his father and grandfather had so successfully begun, paying special attention to the improvement, by crosses and selections, of many kinds of cultivated plants: vegetables, Sugar Beets, Wheats and flowers as well. He classified the Potatos of his collection in a manner similar to that used by his father for the classification of Wheats, and published the first edition of *Catalogue methodique et synonymique des Pommes de terre*, two editions of *Catalogue des Froments*, and also *Les meilleurs Blés*, one of the largest works on the subject. He also revised and enlarged *Les plantes potagères* and published a number of papers on various subjects. He died suddenly in 1899, leaving five sons and two daughters. His wife, Madame Henry L. de Vilmorin, now nearly eighty years of age, lives in the family estate at Verrières, spending some of the winter months in her Riviera residence.

M. Maurice L. de Vilmorin the younger brother of M. Henry L. de Vilmorin, also engaged in the management of the firm. His country home was at Les Barres, Loiret, and he devoted himself more especially to the study of forest and ornamental trees, and established close to the arboretum of his grandfather the largest collection of shrubs in France, of which he published the catalogue, in 1904, under the title of *Fruticetum Vilmorinianum.* Up to his death, in 1918, he maintained close relations with missionaries living in China, and received from them several thousand kinds of seeds, mostly of woody plants, many of which proved to be new species and among them the famous Davidia involucrata, which flowered at Les Barres in 1902 for the first time in Europe.

M. J. M. Philippe Leveque de Vilmorin, the eldest son of Henry, born in 1872, entered the firm when still young, and became the head of the business in 1899, after the death of his father. Carefully prepared for his duties, his botanical and scientific inclinations led him to enlarge at first the collections of herbaceous and woody plants in his private park, to have a large rockery built, much in the style of the one at Kew, and to add to the chemical laboratory built by his father, another one for biology and pathology. Experiments and crossings in cereals and Potatos were greatly developed, one of which, on the premature lifting of seed tubers, he just finished before he died.

When Mendel's law was brought to light, he devoted himself entirely to its study, started a number of experimental crosses in Peas, Wheats, etc., and soon became the first geneticist in France. Many readers interested in these matters will remember the Genetic Congress held in Paris in 1911, of which he was the secretary and in fact the organiser.

In 1900 he married Mademoiselle Mélanie de Dortan, whose old French family has a large estate at Dompierre les Ormes, Saône et Loire, and Monsieur Philippe, as he used to be called, soon started an arboretum on one of the farms his wife had inherited, covering about fifty acres, for the trial of all forest and ornamental trees and shrubs likely to succeed in the hard conditions of soil and climate of that hilly region. This arboretum, named Pezanin, started twenty-five years ago, already begins to bear fruit, namely, to show the superiority of Conifers over deciduous trees. For instance the Douglas Fir so surpasses the Pines and other Firs grown in France that it has induced foresters to plant it more and more extensively. His eldest sister, Mademoiselle Elisabeth de Vilmorin, married in 1896 Count d'Estienne d'Orves, who soon became a partner of the firm. In that capacity, he showed remarkable business ability. As a lover of Sweet Peas, he did much to develop the culture of that flower in France, while as a golfer he favoured the improvement of turf seeds. His pursuits brought him into close touch with English and American seedsmen, amongst whom he numbered a great many friends who sincerely mourned his untimely death, when this took place on March 1, 1926.

We may now consider the present members of the firm.

Madame Philippe L. de Vilmorin (see p. 206) has, since the death of her husband, taken deeper and deeper interest in the management of the firm, thoroughly maintaining the collections, continuing the experiments and scientific work of M. Philippe, and assisting some of them, such as the arboretum at Pezanin and the library, from her own private means. In addition she takes a kind and personal interest in the staff, and receives visitors with grace and kindness. She has been Chevalier of the Legion of Honour for some years, and not long since was promoted to the rank of Officier.

Monsieur Jacques L. de Vilmorin, eldest son of M. Maurice, entered the firm some years before the death of his father, taking in hand the Sugar Beet seed production, concerning which he published in 1925 a complete book as his thesis for the degree of Doctor in Science. Besides engaging in the general management of the firm, he has also taken over the direction of the experiments and improvements of Wheats, and other Cereals. During the war and since the death of his first cousin Philippe, Monsieur Jacques L. de Vilmorin has assumed the direction of the experimental and scientific work carried on at Verrières. He is a member of the Academie d'Agriculture and has won the Legion of Honour.

M. Henry Louis de Vilmorin, younger brother of M. Philippe, entered the firm after the war, through which he passed safely from beginning to end, returning with the Legion of Honour. Beyond the commercial management of the business, he has devoted himself to the study and improvement of the Potato. He is fairly well-known amongst English and Scotch growers, often attending the trials at Ormskirk, where he sends every year a large number of the leading varieties grown in France and some of his own seedlings for trial of resistance to wart disease.

And now the sixth generation of the Vilmorins has come forward in the person of M. Roger de Vilmorin, son of Madame Philippe. A science licentiate, he recently entered the firm, and is now passing through its numerous departments to become acquainted with both the business and cultural sections before taking the place occupied by his father.

PRIMULAS AT HILLSIDE, READING.

On one of the highest positions in Reading, a member of the Palmer family built a fine house and created a garden well supplied with greenhouses. In course of time this little estate came into the hands of Mr. Leonard Sutton, senior partner of Messrs. Sutton and Sons, who is not only a seedsman and a keen business man, but a gentleman with a great love for flowers and plants, who is never happier than when in his own home and garden. No matter at what season of the year a visit may be made, the Hillside gardens are invariably interesting and remarkably well-kept. In the early months of the year, however, the Primulas, Cyclamen and Cinerarias are especially attractive, arranged in a conservatory and in several greenhouses.

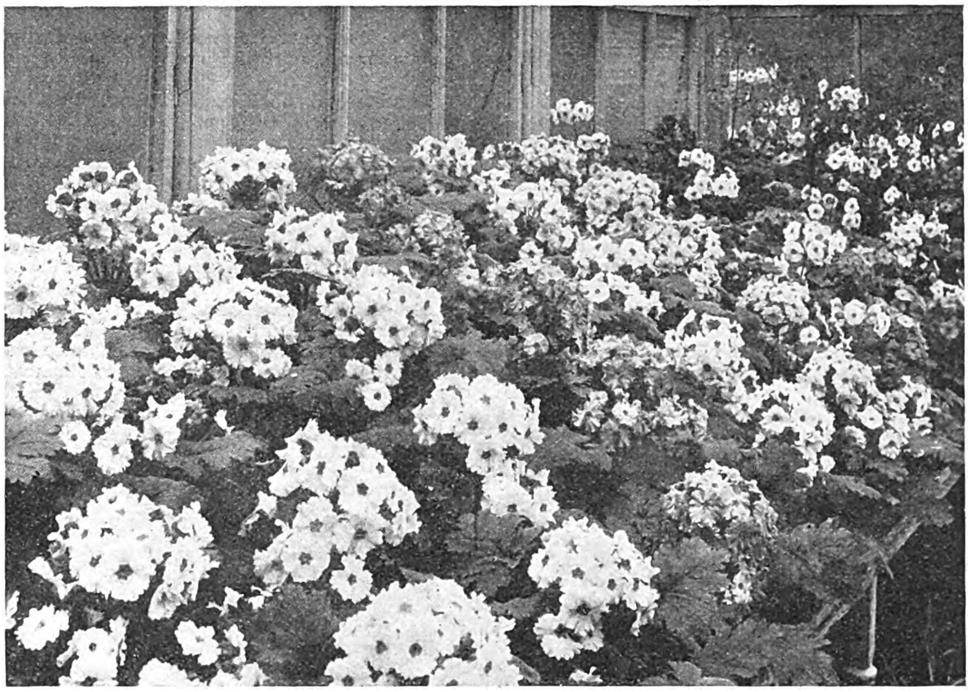


FIG. 107.—GIANT FLORISTS' PRIMULAS AT HILLSIDE, READING.

Readers must not conclude because Mr. Leonard Sutton belongs to the Reading firm of seedsmen and lives in Reading that the display at Hillside is derived from and maintained by plants grown at the nursery. Not at all. Mr. Townsend, who has had charge of the Hillside gardens for many years, and Mr. Janes, in charge of the nursery, are friends, but in regard to their respective charges, they have no dealings with each other.

Mr. Townsend obtains his seeds, raises and cultivates his plants, as do other gardeners, but with this difference, he has to maintain a very high standard of excellence, otherwise unfavourable comparisons might be made between his plants and those at the nursery. How well Mr. Townsend succeeds is indicated by the illustrations (Figs. 105 and 107), and by the pardonable pride Mr. Leonard Sutton takes in his efforts.

At Hillside just the usual reasonable facilities are provided; painstaking skill does the rest. About 900 Primulas and 200 Cyclamens are grown each year, and when in flower they are grouped effectively in the several glass structures. A raised group of the stellata variety Coral Pink was very beautiful a few days ago, while the large-flowered Reading Blue, Pearl and Reading Pink provided a contrast to its lighter inflorescences. Vesuvius Star and Ruby Star are brilliant varieties, the crimson of the former being enhanced by the deeper crimson around the orange eye; Crimson King, Brilliant Rose and Giant White form another pleasing association. Giant White Star is charmingly graceful, and will associate with any and every other variety; at Hillside it serves to throw into sharp relief a new, deep blue Star variety with a yellow eye, as yet unnamed.

Primula malacoides is grandly grown at Hillside, but never grouped with the Chinese types. Some very fine forms have been selected by Mr. Townsend, who is as keen to observe and secure improvements as any member of the nursery staff; indeed, there is a genial and healthy competition between the two establishments. The most effective Cyclamens during our visit were Cherry Red, Giant Crimson and Giant White, these being grouped in a bold bank in the conservatory. On one plant, in a forty-eight-sized pot, we counted thirty-eight flowers in addition to many buds.

Cinerarias were not yet at their best, but Pink Pearl, with lovely rose-pink, large flowers on a dwarf plant, was very striking. Blue Gem, Reading Gem and Forget-me-not Blue were beginning to make a display. The last is a dwarf, intermediate variety needing somewhat smaller pots than other sorts, and special care in watering, but it thoroughly merits the extra attention it requires.

LEAF ROT OF THE CARNATION.

(*Concluded from p.* 197).

The fungus causing the disease penetrates the leaf from one surface to the other and also fills the cavities of some of the epidermal cells, whence the hyphae enter the thick outer wall and spread for a considerable distance, immediately under the cuticle. In the thick outer wall of the epidermis the hyphae increase in quantity and become so intertwined as to resemble a genuine tissue—the so-called plectenchyma (Fig. 109).

In certain places, the plectenchyma becomes rather thicker, and consequently lifts up the waxy cuticle in such a way as to resemble a small dome. At the same time, large numbers of spores are formed on the exceedingly short mycelial branches, and the cuticle is caused to split under the pressure exerted (Fig. 109). The spore masses are thus exposed to the open air and are ready for distribution by rain or wind. When viewed from above, by means of a lens, the spore masses are inconspicuous and scattered, and are often partially hidden by the folds of the wrinkled and uplifted cuticle and epidermis. When fresh and moist, they are of dull white colour,* and may be circular, oval, or oblong in outline, measuring up to 0.4mm. in diameter or length. The broken and turned-back edges of the cuticle can be distinguished surrounding the spore mass, and the whole resembles a minute spot of candle grease with a jagged collar of cuticle.

Spores are produced in very great numbers in the pustule, but apparently they are not always immediately dispersed, but in some cases are pushed outwards in the form of an ever-widening disc. When viewed from above, the darker mass of the mycelial base can be distinguished in the centre of the white disc. The disc form of spore mass was only occasionally met with and was only found (in the cases examined) on diseased areas of the youngest leaves which were still tightly clasped together. There is a possibility, therefore, that the disc-shaped mass only results when the exudation of spores occurs in a restricted space. Discs measuring from 0·17mm. to 0·38mm. were observed.

When spores are removed by means of a needle from the minute scattered masses or from the flange of a disc, and are examined in water they are found to be extremely variable in shape and size, especially if taken from a recently formed mass. They are colourless, one-, two- and (most commonly) three-septate. On rare occasions a four- or even five-septate spore occurs. Their shape is shown in Fig. 108.

The end wall of the basal cell is rounded and, in mature spores, is provided with an appendage which measures up to 10μ in length, and which usually projects rather to one side or continues the concave outline of the spore. The apical cell tapers slightly and the long appendage at this end (measuring up to 16μ) is cut off from it by a septum. The spores, including appendages, measure up to 42μ in length and 7μ in breadth, but very frequently masses of spores may be examined which are devoid of appendages.

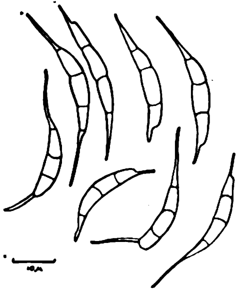


FIG. 108.—LEAF ROT OF CARNATION.

Spores of the fungus (Pseudo-discosia Dianthi) showing the characteristic appendages which they acquire at maturity. × 566.

Germination, which can be induced by placing the spores in a drop of water, takes place readily, and is well advanced at the end of forty-eight hours at room temperature (about 60°F.). A germ tube may grow from any cell of the spore, but where two septa are present, it most commonly grows first from the centre and sometimes from the basal cell. In three-septate spores, it most commonly arises from the cell next to the basal cell. A remarkable feature of the germination process is that the extreme tip of one or both of the appendages may swell and become globular, though this does not always occur. The germination process is illustrated by Höstermann and Laubert.*

Judging by the fact that the disease was prospering under winter conditions, it would seem that dampness and low temperatures are favourable to the growth of the fungus. As regards measures of control, it is evident that very great care must be taken in the selection of cuttings from diseased stocks, and that such cuttings should be "struck" in sand, kept as dry as possible, and with the minimum of overhead watering. If the stock plants are badly diseased, there will be considerable difficulty in finding suitable shoots which may be used as cuttings, and in this connection it may be mentioned that on the plants examined, so many as twelve leaves of the terminal rosette ("spike"), some only just pushing free from another sheathing leaf, were found to be attacked.

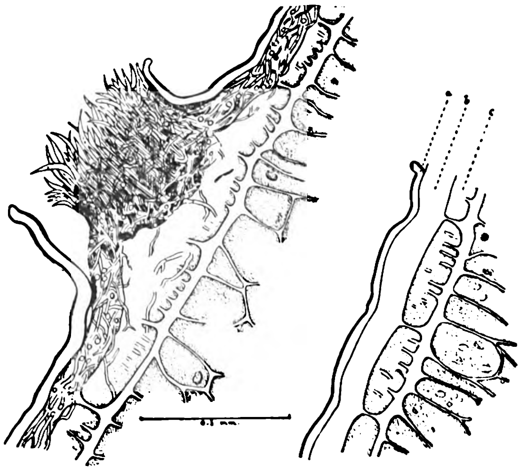


FIG. 109.—LEAF ROT OF CARNATION.

Parts of transverse sections of the leaf. (Right) Healthy tissue; (a) Cuticle; (b) Thick wall of (c) epidermal cells. (Left) Diseased; showing the fungus mycelium interwoven (plectenchyma) in the thick epidermal wall and a young spore mass or pustule bursting the cuticle. Both × 200.

Owing to the fact that the youngest leaves of a terminal bud (centre of a rosette) grow up inside other leaves which enclose them, the contact and friction provides means of infection if any outer leaf is diseased. The leaf arrangement is opposite and decussate, each pair of new leaves being enclosed by a previous pair.

The disease, as already described, is capable of attacking the leaf at any part of its length, but since it is most frequently found at the base, the inference is that accumulated moisture held at the base of the leaf is a factor which aids infection, and if so, this would obviously be increased by overhead watering.

Assuming that a number of healthy cuttings have been secured from diseased stocks, it would be advisable to burn the latter and to "strike" the cuttings under the conditions suggested above. Careful inspections of the cuttings should frequently be made, and any showing signs of disease should be removed and burned. If not in a glasshouse, protection from rain should be provided by covering with frame lights, allowing plenty of air at the sides.

It is at present unknown whether the fungus can also overwinter in another form in decaying Carnation leaves, but because this possibility exists, it is advisable that the cuttings, when rooted, should be planted out in ground as far away as possible from that originally occupied by the diseased stock plants.

If all the original stock had not been destroyed or if the disease were known to be persisting in the neighbourhood at the time that the rooted cuttings are ready for planting out, it might be advisable to protect the latter by dipping the foliage in Bordeaux mixture, or by spraying, using a strength which would not cause damage to the leaves.

We agree with the German authors in considering the present disease to be at least as serious as any of the fungous diseases already well-known to the Carnation grower. Although this is possibly the first outbreak in this country, and although it has apparently only once been recorded on the Continent (Germany),* it is highly advisable that growers of Carnations, and particularly raisers of new varieties, should at once closely overhaul their stock in order to restrict as far as possible its spread in this country. We shall be glad to examine any Carnation plants which show symptoms of Leaf Rot. *E. S. Salmon and W. M. Ware, South-Eastern Agricultural College, Wye, Kent.*

THE HYBRID ORIGIN OF LILIUM THUNBERGIANUM, SCHULTES.

(L. CONCOLOR, SALISBURY ♀ × L. DAURICUM, KER-GAWL ♂).

For several years I tried in vain to obtain seeds from Lilium Thunbergianum, but it was impossible either by self-fertilising or by crossing to obtain an enlargement of the ovary. This behaviour confirmed my belief in the hybrid origin of L. Thunbergianum. Its variability is further evidence, and there is the statement that even in Japan it is only known as a garden plant and not endemic. Of this question of hybridity, I received an answer from nature even earlier than I thought.

In June, 1923, I fertilised L. concolor, Salisbury, having vermilion-red flowers, sparsely spotted with black, tomentose buds and a green stem—perhaps a form of the variety pulchellum Regel—with pollen of L. dauricum, Ker-Gawl, the red-flowering type which forms bulbils on the creeping part of the stem. The result was a seed-pod, rather short compared with those of other species of the same section. The reverse cross failed. The bulb of L. concolour, which was in its first season after planting was fully exhausted by seed-bearing, a condition perhaps, natural to this species. The light yellowish-brown seeds were sown the following winter and they germinated fairly well. On June 16, 1926, the first seedling flowered, followed by several others, the last opening on July 9. All proved to be L. Thunbergianum, Schultes. They varied in growth and in form and colour of their flowers, but only within the limits of L. Thunbergianum. Last autumn the bulbs were taken up and they could not be distinguished from those of L. Thunbergianum. They had formed bulbils on the underground part of the stem, which grew straight up and was not creeping as in the case of the male parent.

---

* It has been noticed that when the diseased area of the leaf has become older, and the plant has been kept under dry conditions, the spore masses may become faintly tinged with pink and then, in colour, somewhat resemble certain species of Fusarium.

* Loc. cit., p. 64.

*Since the above was written, we have ascertained that the disease occurring on Carnations in the open in Holland, described in *Versl. en Meded. Plantenziektenkundigen Dienst te Wageningen*, No. 41, p. 19, 1925, as due to the attacks of a fungus tentatively ascribed to the genus Septogloeum, is the same as the Leaf Rot described above. Specimens sent by us to Wageningen were examined and Dr. T. Schoevers informs us that the fungus previously thought by him to be a Septogloeum was then recognised as actually Pseudo-discosia Dianthi. In Holland the injury caused was very great, many plants being entirely destroyed.

The flowers of the first seedling were similar to those of L. Thunbergianum bicolor, only more densely spotted, even more densely than in both parents. The two next were very near to L. Thunbergianum biligulatum, the one fairly spotted, the other nearly spotless. Then came others of dwarf habit, of impure red colour, as ugly as L. Thunbergianum fulgens, or even more so. The last seedling to flower was very like the first, only the flower was less spotted, not so flat and therefore smaller than the others, while the leaves were shorter and not so spreading. Moreover, its time of flowering was nearly the same as the male parent, therefore it was not transplanted; perhaps in the coming season it will form stolons. This experiment should be repeated in other gardens by using all the forms of L. concolor, and I do not doubt that all forms of L. Thunbergianum will occur among the seedlings.

In regard to the arrangement of this and related Lilies by E. H. Wilson in his *Lilies of Eastern Asia* (the best book on Lilies ever written in my opinion), his varieties of L. davuricum, Ker-Gawl; L. venustum, L. Batemaniae L. pardinum and L. Wallacei belong to L. Thunbergianum. All the varieties which he united in L. davuricum, sub-species Thunbergianum, also occasionally form stolons from the base of the bulb.

As mentioned above, it was impossible to get seeds from L. Thunbergianum, yet the pollen proved highly fertile on L. croceum, Chaix. In June, 1922, I fertilised this species with pollen of L. Thunbergianum biligulatum. The seed pods were big and heavy and contained fully-developed seeds. The seedlings first flowered in 1925, and last season for their second time. They proved to be L. umbellatum and showed very little variability. The parentage of L. umbellatum, most differently recorded, is therefore cleared up. Though among the seedlings there was nothing of special horticultural value, as there was none with flowers better formed than in L. umbellatum erectum, or better coloured than in L. umbellatum incomparabile, they showed the possibility to obtaining other varieties of L. umbellatum by using different varieties of L. Thunbergianum. In one point they proved valuable, being more ready to bear seeds than the old varieties, which perhaps are weakened in this respect by their vegetative propagation over a long period.

I send this note to be published first in *The Gardeners' Chronicle*, feeling most indebted to this journal for information on all questions of horticultural hybridisation. *Fritz Berckmüller, Hamburg-Volksdorf.*

ECONOMIC PLANTS OF THE BAY ISLANDS (HONDURAS).

(*Continued from p.* 181).

COYOL PALM.

THE Coyol Palm, Acrocomia sclerocarpa, Mart. (syn. A. aculeata) is called Supa in the Bay Islands and in British Honduras, but the Miskito Indians (Mosquito Coast) apply the same name to an entirely different Palm (Gulielma sp.), which is not found north of the Mosquito Coast.

The Coyol Palm is found growing wild in all the Bay Islands, but nowhere in large quantities. It prefers dry soil and reaches a height of twenty-five feet to thirty-five feet; the stem is somewhat enlarged at a short distance from the ground and then tapers gradually upwards and downwards. In older specimens the hard shell frequently cracks open at the enlarged section of the stem. The trunk and the leaf-stalks are armed with strong, sharp, three-sided spines, which may be five inches in length, and prevent quadrupeds from ascending the tree. The stem ends in an almost globular crown of drooping, pinnate leaves of dark green colour, which have a length of ten feet to fifteen feet. The dead leaves do not drop off for some time, but remain attached to the tree, merely hanging downward, and their withered, brownish appearance forms a contrast to the more erect, dark green, young foliage.

The Coyol bears bunches of edible, globular fruits of a dark green colour, the size of an Apricot. The extremely hard stone of the fruit takes a pretty polish and is made into ornaments (rings, cuff buttons, etc.). The kernel inside is rich in oil, which in Jamaica is known as Palm oil. This has a pronounced odour of Violets, and is used in making butter, perfumery and Violet soap. A strong fibre may be obtained from the leaves, but locally none is extracted. An intoxicating drink, known as Vino de Coyol (Coyol wine) is made by the Ladinos from the sap of the tree, obtained in exactly the same manner as that of the Cohune Palm, to which it is even preferred.

CABBAGE PALM.

Roystonea oleracea (formerly Oreodoxa oleracea), the Cabbage Palm or Yagua, sometimes erroneously called Royal Palm, is very graceful, and the tallest of the Central American Palms, reaching up to 100 feet (30m.). The true Royal Palm (R. regia or O. regia) is not found at all in the Bay Islands, but it is cultivated in some of the Central American cities; its home is supposed to be the island of Trinidad, and the neighbouring part of the South American continent. It is much smaller than the Cabbage Palm, and it may also be easily distinguished from its more graceful, near relative by its trunk being swollen in the middle and tapering thence both upward and downward.

The heart leaves of the Cabbage Palm are eaten, either pickled or boiled as a vegetable. In flavour they are said to remind one of Cabbage, hence the name. From the centre of the crown of leaves a tall, yellowish spathe, or sheath, projects upwards, like a flagpole or lightning rod. This Palm, like the Coyol, the Royal Palm and the Gulielma, does not have the leaf divisions lying horizontal and in one plane, as in most Palms, but they are tilted at different angles to the midrib, thus giving the foliage a very unorderly appearance; the leaves are therefore, useless for thatching.

BOTAN AND THATCH LOG PALMS.

The Botan or Guano is a thin, tall Palm, with fan-shaped leaves, found largely in Utilla and Barbareta, and occasionally in the other islands. In Utilla the trunk of the old tree is exclusively used as posts in the construction of "Coconut houses," and "turtle crawls," as it is very durable in the sea-water. The fibre obtained from the leaves is sometimes made into hats, mats, baskets, brooms, and used for thatching.

The Thatch Log or Salt-water Pimento—called Palmito, or Palma de Escoba, by the Ladinos, is another small Palm with fan-shaped leaves and smooth stem. The leaves are locally used for thatching and in making brooms, hats and baskets. The upper part of the stem is soft and spongy, and is occasionally used to stuff pillows, after being sliced into fine flakes. This Palm is also found on the cays off the Mosquito Shore, and in several places on the mainland. The Indians use the hard, durable wood to make handles and bark beaters. *Edouard Conzumius, 33, Boulevard des Batignolles, Paris.*

(*To be continued.*)

VEGETABLE GARDEN.

MAINCROP ONIONS.

THE frosts of February were very beneficial in pulverising the surface soil, a very essential condition for seed-sowing. Advantage should be taken when suitable conditions prevail to sow the maincrop of Onions on ground that has been well-trenched and manured. Do not be in a hurry, as it matters more how the seed is sown than when. Never make an attempt to sow when the soil is sticky, but wait until the ground can be trodden very firmly, and without adhering to the boots.

If obtainable, scatter plenty of burnt refuse over the plot, also give it a liberal dressing of soot before raking it over in readiness to draw out the drills, which should not be too deep. Allow fifteen inches between the rows. Do not sow too thickly. Cover and tread-in the seeds firmly before finally raking over the plot.

PARSNIPS.

A SOWING of this crop may also be made now, but, unlike the Onion, Parsnips should not be sown on ground that has been recently manured, or the roots will fork.

This vegetable grows best in a fairly heavy soil which has been deeply trenched, well-worked and pulverised. Before sowing the seeds well dress the surface soil with burnt refuse and soot. Sow the seeds thinly in drills made about two inches deep and eighteen inches apart. Place about five seeds in groups at a distance of ten inches apart.

Should roots be required for exhibition, or where it is found difficult to grow this vegetable in the ordinary way, holes should be bored with a suitable iron bar to a depth of three feet to four feet and filled with a finely-sifted compost of loam, burnt earth and sand mixed with a little bone-meal and soot. The compost should be on the dry side when it is placed in the holes, and should be made quite firm. Leave a small depression over the centre of each prepared site, sow four or five seeds at each station, and cover them with compost to the depth of one-and-a-half inch.

When the seedlings commence to grow strongly carefully remove all but the best one. Afterwards keep the plants lightly dusted with old soot and maintain a loose surface tilth by the frequent use of the Dutch hoe. *R. H. C.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for the opinions expressed by correspondents.*]

February Rainfall at Culzean Gardens.—When learning (both by wireless and the newspapers) of the excessive rainfall in the south, I thought it might interest you to know that our rainfall for the month was only 1·65 inch. This was spread over fourteen days, five of which only gave ·04 inch or less; the heaviest rainfall in twenty-four hours was on the 3rd, viz., ·43 inch. On two previous occasions during the past eight years February has proved a comparatively dry month, viz., in 1921, when only ·59 inch was recorded, and again in 1924, when the total was ·64 inch, but I do not wish to convey the impression that it is always so, as we have recorded the fact that in February, 1923, the rainfall totalled 4·97 inches, and 1925 was not much less with 4·31 inches. *A. T. Harrison.*

Pear Verulam.—A few days ago, I was presented by Sir James Bruton, a late Mayor of Gloucester and for some years member of Parliament for the City, with a few Pears grown on a tree in his garden. The variety is Verulam, and Sir James informed me that when he went to his present residence, forty-seven years ago, the Pear tree, growing on a wall, was then apparently an old one. The significant fact about it is, however, that never once in the forty-seven years that Sir James has known the tree has it failed to bear. On occasion, the crop has consisted of only a very small number of fruits, but in no single year has Sir James failed to taste a Pear from this particular tree, and it looks as if it may continue to bear fruit for a long time to come. It would be interesting to know if there are records of any other Pear trees in this country that have produced fruits consistently for so long—the tree I am referring to might have been doing it for years before Sir James Bruton first knew it, nearly half-a-century ago. *G. H. Hollingworth, Gloucester.*

Sunlight-Ray Lamps in Glasshouses.—Owing to the dull, sunless weather experienced in the vicinity of the Cheadle Royal Mental Hospital, just outside Manchester, there is some difficulty in the early months of the year in raising seedlings satisfactorily, as they are apt to get drawn, but I have found by experimenting with sunlight-ray lamps a marked difference in seedlings subjected to the rays, over those under control. I am convinced by these experiments that in districts where there is a lack of sunshine, and electric current is readily available, the use of these lamps will be profitable to anyone who has to get produce early, and also, possibly, in other ways. So far, I can only base my experiments on the results of 1927 to date, in raising Tomato seedlings, Cucumbers and Onions, and in each case I am satisfied with the results. Narcissi, picked in the bud, respond very quickly to the rays, and will open in eight hours. Lily-of-the-Valley also, were brought on in the usual way, [and subjected to the rays to open the flowers, which were far better than those from retarded crowns, with wonderful green foliage, which is a big asset, and very fine, stiff stems. A lead-covered cable is run from the main supply along the roofs of the houses, and 500 watt, gas-filled lamps are fixed at intervals, with an X-ray shade, which the makers claim will give the equivalent to 1,500 watts; this I found more satisfactory than 1,500 watt lamps, as the latter gave off a tremendous heat, and raised the temperature of the house too much; the former 500 watt lamp, with shade, does not increase the temperature at three feet from the lamp more than 3° over the ruling temperature of the house. The lamps are controlled by an independent switch to each, and are only used in the day-time; the light is also turned off when the sun shines. When potting off the seedlings the rays were kept on continuously for twenty-four hours with good results, no flagging occurring. *Allan Falconer, Cheadle Royal Gardens, Cheadle, Cheshire.*

Vita Glass.—As one of the oldest converts of the new glass which admits the ultra-violet rays of the sun, may I suggest a most useful manner of applying its unique qualities at this season of the year? My wife and I have carried out some simple experiments, comparing the growth under identical conditions of seedlings screened by Vita glass and ordinary glass. The seedlings under Vita glass germinated before the others, and showed a much taller, sturdier growth. This seems to open a field of usefulness in glazing greenhouses where specially valuable plants are being grown or where it is desired to get very early produce, such as Strawberries, for the market. *N. Kerr Russell, M.D., Newcastle.*

Phyteuma orbiculare.—I am very much surprised to read on p. 181 that Mr. Arnott's experience of this plant is that it does not like lime in the soil, because it is a native British plant, and is found wild only on chalk downs in the South of England, being quite common in some localities. It may be, of course, that whilst it shows such a decided preference for chalk, it may not relish the burnt variety known as lime. If so, it is an interesting fact and worth noting in the case of other plants.—*C. Nicholson, Hale End.*

The Leaf-Cutting Bee.—It would be interesting to know which of our British species the Rev. George Birnie was describing (see p. 155), as there is no such species recognised nowadays as Megachile rosea. Probably he referred to M. centuncularis—almost the smallest of our eight native species, and the commonest and most widely distributed. It uses many other plants besides Roses, even when the latter are available, and several of our other species also make use of Rose leaves. *C. Nicholson.*

SOCIETIES.

HORTICULTURAL CLUB.

The annual general meeting of the Horticultural Club was held on the 8th inst., at the Trocadero Restaurant, Piccadilly Circus. Mr. Gerald Loder, Chairman of Committee, occupied the chair. After the minutes of the last meeting had been read and confirmed, the Hon. Secretary read the report of the management Committee for 1925-6, from which the following are extracts:

> The period covered by the report has been one of quiet waiting and endeavour to keep the Club in being until opportunity afforded to obtain a Club Room, which the Committee recognise is the most pressing need of the members. As one of the objects for which the Club was founded was returning hospitality shown by friends abroad to British horticulturists, your Committee identified the Club with the Entertainment Fund of the Foreign Delegates to the Fédération Horticole Professionnelle Internationale on the occasion of the delegates meeting in this country. The sum of £10 was voted from the Club funds, and with other amounts subscribed by members, brought the total contributions of the Club to £32 12s. 6d.
>
> The resignation of the Hon. Secretary, Mr. Geo. F. Tinley, owing to the pressure of other business, was accepted by your Committee with regret, and he was asked to continue in office until a new Secretary was appointed. The Committee has approached several gentlemen, but, so far, without success, and meanwhile, Mr. Tinley continues to act.
>
> The Committee has pleasure in stating that a series of lectures fixed for the first R.H.S. meetings in January, February, March, April and May have, so far, been attended with great success, and your Committee hopes to arrange an outing in the summer of 1927.
>
> The membership of the Club is 127; very few resignations have been received during the past two years, but several of the members have died, including Mr. R. Pinches, who had served the Club faithfully as a Committeeman for a long number of years.

The adoption of the report was moved by Mr. Loder who stated that the series of dinners and lectures held this spring had been very successful, and there were signs of revived interest in the Club generally. He hoped that Mr. Tinley would reconsider his desire to resign the office of Hon. Secretary, for it was due to his efforts that the recent meetings had been so successful. The great need of the Club was a Club Room, and he hoped that this might be obtained.

The adoption of the report was seconded by Mr. P. R. Barr, the Hon. Treasurer, who gave some particulars of the finances of the Club, which showed a balance in hand of £98 4s. 8d. up to December 31, 1926, and investments amounting to £600.

Mr. Laxton having stated that it was the general wish of the members that Mr. Tinley should be asked to continue the office of Secretary and he hoped he would do so, it was explained that, according to the rules, the Secretary is appointed by the Committee. The adoption of the report and balance sheet was carried unanimously.

The meeting then proceeded to the election of officers. On the proposition of Mr. Loder, seconded by Mr. Darlington, Lord Lambourne was re-elected President, and the vice-Presidents Sir John Llewelyn and Mr. C. E. Shea, were also re-elected. Mr. P. R. Barr was re-appointed hon. treasurer, and the trustees, Mr. H. R. Darlington and Mr. E. Sherwood, were re-elected, and Mr. J. M. Bridgeford appointed to fill a vacancy arising. Mr. George Ingram was re-elected auditor, and Mr. A. Dawkins elected auditor in the place of the late Mr. R. Pinches. The members of Committee were all re-elected, and Mr. A. Dawkins added to fill a vacancy.

The Lecture.

Following the meeting and dinner, at which nearly fifty were present, Mr. F. J. Chittenden gave a lecture entitled, "Some American Impressions." Mr. Chittenden held the keen interest of his audience for some two hours, describing the various places he visited on the occasion of his attending as a delegate from the R.H.S. to the International Conference on Plant Sterility in New York, and at the International Congress of Plant Sciences at Cornell University. He first described his visit to Los Angeles, California, where the climate, he said, was like that of South Europe, so that vegetation was totally different from what we know here. There were fine, wide streets which are lined with Date Palms and Pepper Trees. The most imposing of all the plants he saw were the Oleanders, which grow ten feet high and some twenty feet through. Bougainvilleas, too, are very glorious. The vegetation on the hills around the town is very scanty, for the forests have been cut down to build houses. In the town itself there were some attempts at gardening, and it seems to be the main recreation of the inhabitants of Los Angeles to sit on their steps in the evenings and syringe water on their little grass plots. In the gardens there are Date Palms, Oleanders, shrubby Hibiscus, and occasionally herbaceous flowers. The next town Mr. Chittenden described was Pasadena, where the gardens are open to the street, and this open condition seems to exist over the whole of the United States. He visited Mr. Theodore Pain's nursery, where there is a fine collection of the native plants of California. He was very interested, he said, to see them growing in tin cans, and there was not a flower pot in the place. Mr. Chittenden said that private gardening, such as we know it, is not practised very extensively in U.S.A., and there are very few American professional gardeners, the gardens being managed by Englishmen, Scotchmen, Frenchmen, Swedes and Italians. Around the Pasadena district are splendid Olive groves and other South European fruits, which are excellently cultivated in the orchards, greatly in contrast to those seen in the Eastern States. He visited the small nursery of the late Mr. Luther Burbank; the largest nursery in the district is that of Mr. Howard Smith, a famous grower of Roses.

From Los Angeles, Mr. Chittenden went north to San Francisco, a very fine city built on undulating ground, and the Park of the Golden Gate is one of the most magnificent public parks he visited. It is built on a sand hill, and he paid a great testimony to the work of Mr. McLaren on the way in which he had laid it out and maintains it. The climate is less tropical than that at Los Angeles, but very mild, as shown by the fine growth of standard Fuchsias, Tree Ferns and other warm exotics. One thing that impressed Mr. Chittenden in the Park of the Golden Gate was the luxuriance of Rhododendrons planted in a mixture of sand and Pine needles. Near San Francisco, at Burlingham, he visited Mr. Frank Cuthbertson, son of Mr. William Cuthbertson, who has made for himself a very nice garden, and he was pleased to notice that his neighbours were trying to do the same. In one big seed-growing farm which he visited near Sacramento, 400 acres are devoted to Asparagus culture, most of it for canning; the stems are cut while white, before they appear above ground. Male Asparagus plants are selected for planting, because it is found that, compared with female plants, the crop is 175 against 100. In this district Pear trees make rapid growth and come into fruit at a very early age, the trees making twelve to fourteen feet of growth in four years. Hundreds of acres of Lettuces are grown for seed, the principal variety being New York, which is similar to our Webb's Wonderful. At Portland, Oregon, which is known as the City of Roses, Mr. Chittenden inspected the Rose trial ground, but was very disappointed with the results.

Travelling north again, he passed through the country explored by Douglas, and reached Seattle on the shores of Puget Sound. This district he described as ideal for the cultivation of bulbs, indeed, from there up to Vancouver Island is some of the finest bulb-growing land he ever saw. When he reached Victoria, Vancouver Island, he said he felt at home, for everybody seemed to have a garden, and there they are enclosed with hedges and well-looked-after. Victoria, he said, was a most delightful city, with a climate something like that of Cornwall. There is an experimental station, twelve to fourteen miles north of the city, and considerable quantities of fruits and vegetables are grown in the district. Most of the gardening is done by Chinamen, who are very successful. The garden at the Victoria Hotel, Vancouver, is, said Mr. Chittenden, exceptionally fine, and the Roses worth going a long way to see. He stated that Dahlias were very popular in this part of Canada, but the varieties are very much inferior to ours, and he considered that there was a good market for some of our best sorts. He visited Vancouver City where, in the Stanley Park, are many magnificent timber trees with enormous trunks, the remnants of the old forest. Fruit farming is conducted in the dry belt of British Columbia.

In the Okanagan Valley no rain falls for eight months, and the land has to be irrigated three times. Fruit farms average about ten acres and are run by two men. The largest he saw was of thirty acres. Apples, Pears and Peaches are the principal crops grown, the Apples being especially good, almost every fruit being of perfect shape and highly coloured. Mr. Chittenden gave an account of the immense Wheat fields he saw when passing across the prairies; at the time he saw them they were covered with snow, but it was dry snow and did the crop little harm. He stated than the Canadians have an intense love for gardens, and that there are many plants in the Rocky Mountains which are worth introducing to cultivation.

Sir William Lawrence, in proposing a vote of thanks to Mr. Chittenden for his interesting address, thanked the Club on behalf of the guests for a most delightful evening.

ROYAL HORTICULTURAL.

MARCH 22 AND 23.—The Royal Horticultural Society's Hall was a fairyland of colour and fragrance on the above dates, and exhibitors and visitors alike enjoyed the fine exhibits with which the hall was filled, and the beautiful spring-like weather that brightened everything and everybody. Daffodils and Tulips were shown in capital condition, and Mr. P. D. WILLIAMS appeared to create a record by securing five Awards of Merit for new Daffodils, and a recommendation for trial at Wisley for a sixth. Spring flowers of many kinds, from the lowly Viola species and Saxifrages to arborescent Rhododendrons, Camellias, and Acacias provided abundance of interest, while Roses and Orchids contributed their quota to a splendid exhibition.

Orchid Committee.

Present: Mr. C. J. Lucas (in the Chair), Mr. Gurney Wilson (Hon. Secretary), Mr. R. Brooman White, Mr. Fred J. Hanbury, Mr. Sidney W. Flory, Mr. Arthur Dye, Mr. H. G. Alexander, Mr. Fred K. Sander, Mr. J. E. Shill, Mr. T. Armstrong, Mr. Henry H. Smith, Mr. John C. Cowan, Mr. A. McBean, Mr. J. Wilson Potter, Mr. E. R. Ashton, Mr. Stuart H. Low, and Mr. Charles H. Curtis.

FIRST CLASS CERTIFICATES.

Sophro-Laelio-Cattleya Mikado (S.-L.-C. Prince Hirohita × Cattleya Emperor Frederick).—A flower of lovely shape and good size; the sepals and petals are soft apricot-coloured, with rose-pink flushing and shading; lip ruby crimson with orange-yellow marks in the throat. Shown by BARON SCHRÖDER (gr. Mr. J. E. Shill), Dell Park, Englefield Green.

Brasso-Cattleya Mrs. Robert Paterson var. Titanic (B.-C. Cliftonii magnificum × C. Clotho).—A large and handsome flower with very broad sepals and petals of soft purplish mauve colour; lip light purple, margined with mauve and with yellow veinings in the throat. Shown by Messrs. BLACK AND FLORY.

AWARDS OF MERIT.

Brasso-Laelio-Cattleya Irma var. grandiflora (B.-L.-C. The Baroness × L.-C. Golden Queen).—A large-flowered variety with bold, clear yellow sepals and petals, and a light cerise lip, veined with orange in the throat. Shown by BARON BRUNO SCHRÖDER.

Laelio-Cattleya General Maude var. Victory (C. Hardyana × L.-C. Rubens).—A fine Orchid both in shape, texture and colour. The sepals and petals are rich purplish-rose; lip of similar colour at the base, but the widespread apex is royal purple and the throat is veined with golden yellow. Shown by Messrs. STUART LOW AND CO.

Odontoglossum Trident var. rubrum (eximium × King Alfred).—A shapely and deeply-hued Odontoglossum; the sepals and petals are bright chocolate-red, with purplish-mauve markings on the blush tips. Lip white, with a broken central area of deep brown, and golden crest. Shown by Messrs. CHARLESWORTH AND CO.

Odontoglossum crispo-Solon var. Perfection.—A handsome form with deep chocolate-red markings and blush-white margins to the sepals, petals and lip. Shown by Mr. J. J. BOLTON, Claygate Lodge, Claygate, Surrey.

Odontoglossum plumptonense var. Senator (amabile splendens × Lambeauianum).—This large-flowered variety is of light purplish-mauve colour, with the apices of the segments pure white, and white markings on the deeper colour. Lip mauve, with orange-brown base. Shown by Mr. F. J. HANBURY, Brockhurst, East Grinstead.

GROUPS.

The green and black Coelogyne pandurata was finely shown by Messrs. CHARLESWORTH AND CO., one spike carrying fourteen flowers; Odontoglossums—O. c. xanthotes, O. Rowena, O. Rosina, O. Clonius and O. plumptonense, were charmingly shown, while Miltonia Kenneth, M. Lycaena, Lycaste cruenta, the copper-coloured Odontioda muralis and Cypripedium niveum were other interesting subjects.

Messrs. SANDERS again made a brave show, with Cymbidiums as their chief subjects. Among these we were attracted by C. brugense var. Rose Marie, a C. Ceres form of deep rose-pink colouring; C. Moth, with heavy brown markings on the lip; C. Louis Sander, of particularly deep rose colouring, and C. Pauwelsii var. Daffodil, of clear greenish yellow. Other notable plants in this large group were Angraecum sesquipedale, the lovely Phalaenopsis amabilis, Masdevallia Gargantua, the quaint little Dendrobium tetragonum and Cattleya citrina.

Messrs. COWAN AND CO. contributed some capital Cymbidiums, notably C. Dotterel, C. Erica and C. Pauwelsii; with these were Dendrobium thyrsiflorum, Brasso-Cattleya Shilliana, Cattleya Tityus, Odontioda Henryi, very fine; O. Mira, Lycaste cruenta, and the old Coelia Baueriana.

Messrs. STUART LOW AND CO.'s exhibit contained good examples of Brasso-Laelio-Cattleya Baroness, Phalaenopsis Schilleriana, P. Stuartiana, Brasso-Cattleya Cliftonii magnifica, Dendrobium Thwaitesiae, Veitch's var., D. Brymerianum, and many excellent Cymbidiums.

Mr. HARRY DIXON exhibited Cymbidiums and Odontoglossums. Messrs. FLORY AND BLACK sent varieties of the handsome Brasso-Cattleya Mrs. Robert Paterson, Sophro-Cattleya Heatherwood, and S.-C. Vulcan, with rich ruby-coloured lip. Messrs. H. G. ALEXANDER, LTD., showed beautiful plants of Laelio-Cattleya Queen Mary var. Radiance, Brasso-Laelio-Cattleya Caligula var. Excelsa, B.-L.-C. Golden Horn, Cymbidium Letty (Gottianum × Merlin) and C. Ladybird, the last green, brown and white.

Sophro-Laelio-Cattleya Mikado, buff, pink and ruby, of lovely form, was shown by BARON BRUNO SCHRÖDER (gr. Mr. J. E. Shill), Dell Park, Englefield Green, who also showed B.-L.-C. Irma grandiflora, of large size and with golden sepals and petals.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mrs. Ethel M. Wightman, Mr. William Howe, Mr. H. J. Jones, Mr. G. W. Leak, Mr. Charles E. Pearson, Mr. D. Ingamells, Mr. J. M. Bridgeford, Mr. Montagu M. Allwood, Mr. E. R. Janes, Mr. R. Findlay, Mr. W. H. Page, Mr. A. E. Vasey, Mr. George Churcher, Mr. James B. Riding, Mr. J. T. West, Mr. W. B. Gingell, Mr. D. B. Crane, Mrs. Helen Lindsay Smith and Mr. H. R. Darlington.

Section B.—Mr. Gerald W. E. Loder (in the chair), Mr. W. J. Bean, Mr. E. A. Bowles, Mr. R. C. Notcutt, Mr. Mark Fenwick, Mr. F. G. Preston, Mr. W. B. Cranfield, Mr. E. H. Wilding, Mr. Reginald Cory, Mr. A. Bedford, Mr. L. R. Russell, Mr. R. D. Trotter, Mr. G. Yeld, Mr. T. Hay, the Hon. Henry D. McLaren, Mr. Clarence Elliott, Mr. Charles T. Musgrave and Mr. S. J. Lucas.

AWARDS OF MERIT.

Caltha palustris alba.—A white form of the well-known yellow Marsh Marigold which beautifies many of our streams. It does not appear to be quite so vigorous as the species, but it is a desirable waterside plant. Shown by Mrs. W. D. GARRETT-BOTFIELD, Beamish, Albrighton, Shropshire.

Magnolia salicifolia.—This Japanese, deciduous species forms a small, graceful tree up to about twenty feet in height. The pure white flowers are somewhat suggestive of those of M. stellata (M. Halleana) when first opening, but are larger and the petals have more substance. The flowers are borne on naked wood, but the leaves are narrowly ovate-lanceolate, green above and slightly glaucous beneath. Shown by LIONEL DE ROTHSCHILD, Esq. (gr. Mr. A. Bedford), Exbury, Southampton.

Primula Runnymede Gem.—To all garden intents and purposes, this is a double-flowered Primula malacoides. It is said to have been derived from P. malacoides fl. pl. × P. sinensis fl. pl. The somewhat woolly foliage is sharply serrated. The habit is rather squat and the double, bright mauve flowers are freely borne in dense whorls. Shown by Capt. SYMONS-JEUNE, Runnymede House, Old Windsor.

Rehmannia hybrida alba.—The parentage of this attractive greenhouse plant was given as "R. angulata × rupestris?" In general appearance it is much like Rehmannia kewensis, with slightly larger flowers and more space between the nodes. The flowers are white, with lemon-coloured tubes.—Shown by Sir WILLIAM LAWRENCE, Burford Lodge, Dorking.

Rhododendron hippophaeoides.—This useful little species was discovered by Forrest in Yunnan, in 1913, where it is widely distributed at fairly high altitudes. It belongs to the Lapponicum series. It makes a neat floriferous shrub from two feet to four feet in height, well-clothed with lavender-blue and bluish-rose flowers. Shown by LADY ABERCONWAY and the Hon. HENRY D. MCLAREN (gr. Mr. J. Puddle), Bodnant, N. Wales.

Rhododendron (Azalea) Kurume Kirin.—This is a very attractive Japanese Azalea. It makes a neat, erect, little, evergreen bush, bearing plentiful hose-in-hose flowers of a fascinating soft salmon shade of colour. Shown by Messrs. ROBERT VEITCH AND SONS.

Rhododendron virgatum.—Although discovered by Hooker in Sikkim and Bhutan, in 1849, the plant shown was collected more recently by Capt. F. Kingdon Ward in Thibet, and numbered 6,279. It is a dwarf, erect, evergreen species, bearing relatively large flowers. They are about two inches across, of blush-rose colour, and borne singly in the axils of the leaves in sufficient numbers to give the appearance of an elongated truss. The dark green leaves, which average one-and-a-half inch in length, are nearly lanceolate, and sage-green below. Shown by Lt.-Col. L. C. R. MESSEL, O.B.E. (gr. Mr. J. Coomber), Nymans, Staplefield.

Saxifraga Coombe White.—This very desirable alpine is a seedling from S. Rocheliana. It makes a neat, compact, little plant, with much of S. Burseriana habit, bearing large, substantial pure white flowers on sturdy stalks. Shown by FRANK LLOYD, Esq. (gr. Mr. M. A. Mills), Coombe House, Croydon.

FOR TRIAL AT WISLEY.

Freesia R. F. Felton.—This is a good variety of the coloured Freesias of which there is now a goodly selection. The flowers are large, rounded and of rich orange colour with deeper markings where the segments overlap. Shown by Mr. G. H. DALRYMPLE.

GROUPS.

Forced shrubs were the subjects of several very attractive collections. Just inside the entrance, Messrs. L. R. RUSSELL, LTD., had a very pretty group of Clematis, in many good varieties, Wistarias, Laburnums, Viburnums, Pyruses and Azaleas, both A. indica varieties and A. mollis × sinensis forms. On the opposite side of the entrance, Messrs. J. CHEAL AND SONS gave special prominence to well-flowered bushes of Rhododendron Pink Pearl, flanked by standard Cytisuses, Wistarias, Azaleas and Polyantha Roses.

At the back of their well-arranged sandstone rock garden, Messrs. William Cutbush and Son successfully grouped a quantity of Lilacs, Wistarias, Forsythias and various floriferous Azaleas. In the rock garden they planted breadths of Muscari botryoides album, Dog's-tooth Violets, Tulipa praestans, Tubergen's var. and Primulas.

Pyruses of many useful varieties were well shown by Messrs. Hillier and Sons, who also had good examples of Euonymus fimbriatus bearing very attractive, purplish young leaves, many Lilacs, Osmanthus Delavayi and Azaleas.

A large exhibit of Azalea mollis × sinensis in distinct varieties, set up by Messrs. R. and G. Cuthbert, provided a splendid mass of glowing colours.

Various uncommon and not generally hardy shrubs added greatly to the interest of the show. Messrs. Robert Veitch and Son had good specimens of the fragrant Boronia megastigma, and the more robust, pink-flowered B. heterophylla, Viburnum Carlesii, Diosma cordata alba, D. c. purpurea, Kennedya ovata purpurea and other species, with such Rhododendrons as R. sutchuenense, R. ciliicalyx roseum, R. luteum and R. Veitchianum.

The chief Rhododendrons shown by Messrs. R. Gill and Son were brilliant trusses of R. Cornubia, R. Bernard Gill and R. H. T. Gill, with a goodly pot plant of R. ciliicalyx. They also had plentiful sprays of Pieris (Andromeda) japonica, Magnolia Campbellii, M. conspicua, Daphne Genkwa and a selection of a good strain of St. Brigid Anemones. Messrs. Reamsbottom and Co. also exhibited their well-known strains of St. Brigid Anemones.

Rhododendron Thomsonii grandiflorum, R. arboreum, R. a. Kermesianum, R. barbatum, R. spinuliferum and other good Rhododendrons were set up by Mr. G. Reuthe, who also showed Corylus pauciflora, Daphne odora, Coronilla valentina and a selection of alpines and border flowers. Messrs. Bakers Ltd. had an attractive group of Japanese Cherries, Viburnum Carlesii, Brooms, Wistarias and Dicentra (Dielytra) spectabilis.

Lt.-Col. L. C. R. Messel, O.B.E. (gr., Mr. J. Coomber), Nymans, Staplefield, contributed an interesting collection of shrubs, which included Pieris japonica, Forsythia spectabilis, Acacia Baileyana, Prunus Pissardii var. Hessei, Rhododendron lutescens and R. oreodoxa.

On the special table, G. W. Blathwayte, Esq., West Porlock House, Taunton, exhibited well-flowered sprays of Acacia Baileyana, A. falcata and A. dealbata, grown entirely in the open.

Exceedingly well-flowered branches of Pieris floribunda were associated with a good selection of alpines and Hyacinths by Messrs. Stewart and Son.

Many profusely-flowered branches of the yellow Banksian Rose, Fortune's Yellow, Austrian Copper and Austrian Yellow Roses, were shown by Mr. G. Prince, while Mr. Elisha J. Hicks set up vases of such H.T. Roses as Climbing Lady Hillingdon, Mrs. Elisha J. Hicks, Madame Edouard Herriot and Souvenir de C. Pernet.

Messrs. Sutton and Sons contributed a tasteful group of well-flowered hybrid Cinerarias, and their new double-flowered Wallflowers. The latter possessed large spikes of fragrant orange and yellow flowers.

Carnations of good quality were staged by Messrs. Allwood Bros., Messrs. C. Engelmann, Ltd., and Messrs. Stuart Low and Co., and the last-named also showed Camellias, Acacias, and Boronia megastigma.

There were many exhibits of rock gardens. Mr. F. G. Wood planted various Primroses, Saxifrages and Azalea Hinomanyo. The Misses Hopkins also used Primulas and Saxifrages effectively. Anemone fulgens provided bright colour in the rock garden of Messrs. W. H. Rogers and Son, who also planted Soldanella montana and various Primulas.

In a boldly disposed rock garden, Mr. Clarence Elliott had sweeps of Saxifraga oppositifolia splendens, S. Grisebachii, Wisley var., of great vigour and beauty, and S. Mira. Messrs. Tuckers, Ltd., had good batches of Saxifraga Sundermanniana, S. eudoxiana, and S. apiculata. Messrs. Maxwell and Beale used Ericas, Primulas and various Saxifrages in their rock garden. Saxifraga (Megasea) ligulata Strachyi was prominent in the rock garden of Messrs. M. Prichard and Son, who also had Daphne Cneorum and other alpines. Messrs. Wm. Wood and Son displayed Japanese Azaleas, Saxifrages and Primulas.

Spiraea confusa, Viburnum Carlesii and Prunus triloba fl. pl. made a good background to the alpines shown by Messrs. Hodsons, Ltd. Messrs. Waterer, Sons and Crisp had a good batch of Tulipa praestans, with several Saxifrages and Primulas.

Large numbers of Polyanthuses and Primroses of considerable interest and beauty were set up by Mr. G. W. Miller. Mr. J. J. Kettle, Miss E. Heathcote and Mr. B. Pinney showed fresh and fragrant Violets.

A large selection of Freesias, staged by Mr. G. H. Dalrymple included the varieties Wistaria, Buttercup and Glowing Embers.

Narcissus and Tulip Committee.

Present : Mr. E. A. Bowles (in the chair), Mr. P. D. Williams, Mr. E. Hawker, Mr. P. R. Barr, Mr. Charles H. Curtis, Mr. W. B. Cranfield, Mr. J. D. Pearson, Mr. F. Secrett, Mr. Herbert Chapman, Mr. Alfred W. White, Mr. Herbert Smith, Mr. J. Jones, Mr. W. Poupart, Mr. C. W. Needham, Mr. G. W. Leak, Mr. G. Churcher, Mr. F. Barchard, Mr. J. S. Arkwright, Miss E. Willmott and Mr. A. Simmonds (Secretary).

Awards of Merit.

Narcissus Godolphin (*Ia*).—A glorious, large, deep golden-yellow flower, with frilled trumpet and firm texture. Stems about twenty inches long. Shown by Mr. P. D. Williams, Lanarth, Cornwall.

N. Havelock (*IIa*).—A beautiful incomparabilis variety, with wide and even perianth segments and finely proportioned trumpet, all of the same clear yellow colouring, but with a deeper shade in the trumpet. Shown by Mr. P. D. Williams.

N. Lanarth (*VII*).—A handsome, deep golden Daffodil of modest size and fine shape ; of Jonquil descent. Shown by Mr. P. D. Williams.

N. Penelewy (*IVa*).—A dainty Leedsii variety, with white perianth segments of fine substance, and a short trumpet of cream colour, with a golden frill. Shown by Mr. P. D. Williams.

N. Tregoose.—An exquisite incomparabilis variety, large-flowered, bold and attractive. Perianth segments soft yellow ; trumpet, deep orange, almost scarlet, and frilled. Exhibited for show purposes. Shown by Mr. P. D. Williams.

For Trial at Wisley.

N. Trevithian.—A Jonquilla Daffodil bearing several golden flowers on short stems. Selected for trial at Wisley. Shown by Mr. P. D. Williams.

Groups.

There was a greatly increased number of collections of Narcissi staged. Messrs. Barr and Sons had an extensive exhibit of exceedingly good varieties. It was a very comprehensive collection, though perhaps the large Trumpet varieties predominated, and of these we especially admired the rich colours of Tasse d'Or, Siegfried, Bardolph, Sungold, Royal Gold and Aerolite. In addition to the above there was a fascinating selection of seedlings of the showy Ajax type, while Sunrise of lovely colouring, Orange Sceptre, which has a large, bright corona, and Messina, with a narrow, vivid corona, of the Barri Daffodils, and Nightingale, a shapely Poeticus, were very beautiful.

Messrs. J. R. Pearson and Sons set up an admirable collection near the gallery. Their flowers were characterised by good size, shapeliness and substance. Firetail, Poeticus, Van Waveren's Giant, King Alfred, Cleopatra and Lord Roberts, large Trumpet varieties, Evangeline and Hera, chaste Leedsii forms, Altna, a large Double, and Zillah, are the names of only a few of the many good sorts.

The collection of Mr. J. W. Barr was worthy of admiration, but it suffered in value on account of the system of labelling, which did not permit the names being read easily. No doubt the long journey did not permit sufficient margin of time for the adoption of the conventional method. There were many good sorts on view, especially Great Dane and Royal Gold, of the large Trumpets, Loch Tyne, a beautiful Leedsii, and Flame, a brilliant Barrii variety.

In a corner group, Messrs. Cartwright and Goodwin displayed a goodly collection which included Cleopatra, Frostbound, St. Vincent, Weardale Perfection and King Alfred, with large Trumpets, and Elvira, a Poetaz form. Messrs. Hewitts, Ltd., interspersed vases of Narcissus Spring Glory, a good bicolor Trumpet, and Sacrifice, a shapely Poeticus, with vases of Delphinium spikes. Near the Orchids, Mr. J. L. Richardson massed vases of Narcissus Glorious (Barrii), Fortune, a large Incomparabilis, with a rich corona, Golden Prophet, a yellow Trumpet of rich colour, and Golden Chariot, a Trumpet Daffodil of great size. He also staged several very good seedling Trumpet varieties.

A splendid collection of Tulips growing in bowls of fibre, was arranged by Messrs. R. H. Bath, Ltd. The chief varieties were Clara Butt, Le Notre, Pride of Haarlem, Andromache, Empress of China and Gesneriana lutea. They also exhibited masses of Dutch Iris, Chionodoxa Luciliae and some very floriferous Primroses.

Messrs. J. Carter and Co. had an attractive exhibit of early Dutch Tulips and Lachenalias. The latter were excellent selections of Whitewell Seedlings. The Tulips were arranged in circles of distinct colours. The principal varieties were Electra, Murillo, Schoonord, Reve d'Or and Peach Blossom. Adjoining his Polyanthuses and Primroses, Mr. G. W. Miller had a collection of Darwin Tulips, Pheasant's Eye Narcissus and Chionodoxa Luciliae. The chief Tulips were William Copland, William Pitt, Princess Elizabeth and Cramoise Brilliant.

Fruit and Vegetable Committee.

Present : Mr. C. G. A. Nix (in the chair), Mr. W. Poupart, Mr. P. C. M. Veitch, Mr. G. F. Tinley, Mr. T. Pateman, Mr. J. Wilson, Mr. E. Laxton, Mr. A. Bullock, Mr. W. Giles, Mr. F. Jordan, Mr. E. Beckett, Mr. A. Metcalfe, Mr. J. Cheal, Mr. A. Poupart, Mr. H. Prince, Mr. H. Markham, Mr. J. Harrison, Mr. W. H. Divers, Mr. W. Lobjoit, Mr. H. V. Taylor and Mr. A. N. Rawes (Secretary).

The only exhibit before this Committee was a new Apple named King George V. It was raised by Lady Thorneycroft and shown by Messrs. J. Cheal and Sons. It was a very attractive looking fruit, something after the style of Cox's Orange Pippin, with a pale yellow skin covered almost entirely with bright red and a few crimson stripes. The flesh is solid and of agreeable flavour. It was recommended that the variety be included in the trial of commercial Apples at Wisley.

GUILDFORD AND DISTRICT GARDENERS.'

A successful series of winter lectures was brought to a close on March 14, when Mr. A. E. Burgess, Horticultural Superintendent to the Surrey County Council, visited Guildford and gave a lecture on "How Plants Grow."

By way of preface, Mr. Burgess said he had watched the progress of the Guildford Association with very great interest, and he was glad to meet professional gardeners who were never tired of discussing the methods of cultivation. Ninety-nine per cent. of his lectures were on practical matters ; but it was an added pleasure that for this occasion the Association had asked him to speak on a scientific phase of horticulture, although his subject would have practical bearings as well. The talk that then followed held his audience in close attention, as he explained some of the marvels of plant life—the cell unit, and the building up of a plant ; life, development and decay, in the process of which provision is always made for carrying on the next generation. "Plants are living things, and must pass through the stages of breathing, feeding, multiplying and decay." As the lecturer dealt with the functions of plants by night and by day, the part played by hair-roots, feeding and the work of the leaves, the subject became full of romance and wonder.

In speaking to a vote of thanks, the President, Alderman W. T. Patrick, J.P., said one could but feel that we are all parts of a universal plan, and that behind these marvels of creation there must be a Creator. Mr. Stedman said it was a pleasure to see so many of the younger men present, and a lecture such as they had heard should turn their thoughts into right channels of study; he hoped they would read and follow up the subject for themselves. Mr. Burgess had placed them under a great obligation in giving a lecture of such educational value, yet, with the fascination of a fairy tale.

Having concluded the winter session, the Committee is arranging a series of summer visits to famous gardens in Surrey: Sir Jeremiah Colman's, at Gatton Park; Lady Methuen's, at Haslemere; Mr. J. J. Joicey's, at The Hill, Witley; Mr. T. Pim's, at Snowdenham Hall, Bramley; The R.H.S. Gardens, Wisley; and others.

An enjoyable social gathering was held on Wednesday, March 16. The hall had been made beautiful by decorations of evergreens, flowers and pot plants lent for the occasion. Soon after 7.30 members and friends assembled, about two hundred being present. All the arrangements were entered into with hearty enjoyment; they included whist, dancing, games, instrumental and vocal music, competitions and refreshments. In a guessing competition, Mrs. Fletcher established a record by guessing exactly the weight of a cake and of a pail of sweets.

During an interval Mr. Patrick made a brief and cheery speech, explaining the work and aims of the Association, and appealing to every one to rally round the Show Secretary, and work for a successful exhibition in July.

Obituary.

H. T. Pitt.—By the death of Mr. H. T. Pitt, of Rosslyn, Stamford Hill, early on March 16, the horticultural world has lost a remarkable man, and the Orchid trade a generous patron. Many years have passed since Mr. Pitt became seriously interested in Orchids, and at that time the Stamford Hill district was not so densely populated as now. Notwithstanding the many difficulties attaching to the cultivation of Orchids in London, Mr. Pitt steadily added to his collection and maintained many of his plants in good health from the time he commenced to grow Orchids down to the time of his death. In conjunction with Mr. Thurgood, his capable gardener, he raised many hybrids, and the manner in which he continuously exhibited flowering plants of Epidendrum Endresio-Wallisii was a subject of frequent comment among Orchid specialists. Mr. Pitt spent large sums of money in acquiring rare species, fine varieties and choice hybrids, and several years ago he paid unusually high prices for exceptionally good Odontoglossums. His collection was an extensive one, and invariably interesting, as he had catholic tastes and did not specialise in any one family of Orchid. Many rare species, some small and quaint, others large-flowered and beautiful, were preserved in excellent health year after year at Rosslyn. Mr. Pitt occasionally offended people by his blunt outspokenness in regard to the merits of a particular Orchid, but any brusqueness of manner was forgotten in his generous praise of plants that appealed to him. He was a member of the Royal Horticultural Society's Orchid Committee, large-hearted, generous in an unostentatious way, a hard-worker, an important personality in the wholesale meat trade, and one who never suffered fools gladly. The funeral took place on Monday last, when there were numerous floral evidences of the high regard in which the deceased gentleman was held, including a superb design in Orchids from Messrs. Charlesworth and Co., in whose business Mr. Pitt took a special interest.

NEW INVENTION.

THE HAMPSON SHOULDER HOE.

Never before has the need of labour-saving appliances been so imperative as in these days of relatively high wages, and any device that will lessen the costs of production and render work easier and quicker, is assured of a ready welcome in any industry. Horticulture is no exception to the rule, but it is not an easy matter to invent a cultivating tool that is valuable to both the commercial grower, who cultivates large acreages, and the private gardener, whose crops are grown on a more moderate scale. But Mr. John Hampson, who in addition to having cultivated crops on a large scale, possesses an inventive mind and considerable engineering skill, has successfully applied himself to the task of speeding up the universal work of hoeing the ground. The idea of his Shoulder Hoe, like all great ideas, is simplicity itself, with the addition of a certain amount of applied science.

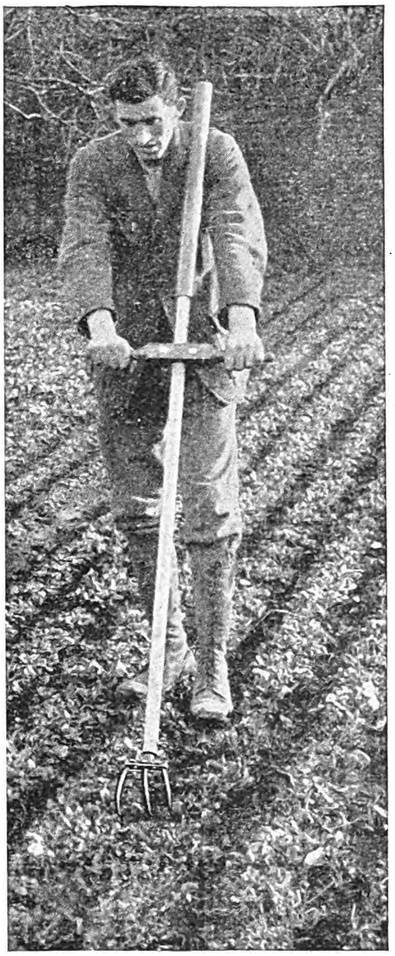


FIG. 110.—THE SHOULDER HOE.

As will be seen from the illustration (Fig. 110), this new invention is in the form of an adjustable cultivator with an extended handle resting on the shoulder, and the operator walks backwards. The act of walking, with the natural leverage caused by holding the cross handle, provides all the energy required, and the hoeing is done at an immensely quicker rate than by using any of the ordinary types of hoe. The work is done better, because the hoed surface is not trodden on, and fatigue is considerably lessened. With the Shoulder Hoe is supplied interchangeable straight hoes of four different sizes.

The implement and its various parts all appear to be strong, light and exceedingly well made. The steel tube, being Sheridised, is rust-proof.

ANSWERS TO CORRESPONDENTS.

Brussels Sprout Leaves with Circular Spots.—*S. A.* The disease is known as Ring Spot of Brassicas and is caused by the presence of a fungus named Mycosphaerella brassicola. This disease, however, seldom causes material damage, and is probably at its worst during a wet season, especially if the Brussels Sprouts are planted in heavily manured ground.

Double-Spathed Richardia.—*Head Gardener.* In large collections of well-grown Richardias it is a fairly common experience to find occasional stems bearing duplicate spathes.

Gardeners' Illness and State Insurance.—*G. D.* The point does not appear to have come before the Courts, but if you have been receiving your full wages during illness, it is only reasonable that your employer should receive the amount paid in respect of the State Insurance.

Holly Seeds.—*K. Y.* Holly berries should be mixed with sand and stored in a cool shed for sowing next autumn, or they may be slightly beaten and the pulp washed from the seeds, and then sown out-of-doors at once. They germinate irregularly; some at the end of a year, others in two years from sowing; and some may lie dormant even three years. A percentage of yellow-berried Hollies come true from seeds, but the majority of the plants do not produce yellow berries.

Names of Plants.—*E. G.* 1, Codiaeum (Croton) Emperor Alexander III; 2, C. Mortii; 3, C. Eugene Draps; 4, C. Count Hugo; 5, C. Inimitabilis; 6, C. Davisii; 7, C. Baron James de Rothschild; 8, C. Victoria superba; 9, Cypripedium, probably a hybrid of C. Druryanum; 10, Cymbidium Lowianum; 11, Ruellia Portellae; 12, Zebrina (Tradescantia) pendula.

Non-Poisonous Weed Killer.—*E. M. D.* An effective non-poisonous weed-killer is made and offered by Messrs. Cooper, McDougal and Robertson, Ltd., Berkhamsted, Herts. It is in liquid form and free from arsenic. Ask for the non-poisonous weed-killer, with instructions for its use as to quantity in proportion to water. The firm generally recommends one pint to two-and-a-half gallons of water, or one part weed killer to twenty parts of water. The weed-killer should be used in dry weather, and appears likely to last for two days at least to give the weed-killer proper time to act. Should it rain immediately after the liquid is applied it would mean that it becomes too diluted to be effective.

Trees to Plant in May.—*G. H. S.* At so late a time as the middle of May, we think your best chances of successful planting would be with Conifers, which may be obtained in pots from most reputable nurserymen, and of these we suggest the following as being suitable for the position: the common Silver Fir and the Spruce, Scots Pine, Pinus Laricio, Cedrus Deodara and the English Yew. If other types are required the Holly, Turkey Oak, the London Plane and Robinia Pseudacacia would be the most likely to succeed. The best Cypress would be Cupressus Lawsoniana, though we should prefer Juniperus chinensis as an alternative tree of somewhat similar type. Whatever tree, or trees, you select it would be essential to give them considerable attention during the remainder of the year until the autumn rains fall. It would be well to provide a screen around each tree for a time, and to spray the stems and foliage towards the end of every warm day.

Violets Unsatisfactory.—*A. B.* We could find no trace of fungous disease, although some amount of Botrytis was present. The plants have evidently been grown too closely together, and their present condition is due to crowding and the unsuitable position of the frame.

Communications Received.—H. H.—C. G.—T. L.—C. and C.—W. A.—A. W.—E. S. S.—E. E. T.—T. P.—H. A.S.—T. S. C.

MARKETS.

COVENT GARDEN, Tuesday, March 22nd, 1927.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz.	10 0-12 0
—elegans	10 0-15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, various, 48's, each	4 6—7 6
— — 60's, per doz.	21 0-24 0
Boronia megastigma, 48's, per doz.	36 0-48 0
Cacti, per tray	
—12's, 15's	5 0—7 0
Cinerarias, 48's, per doz.	12 0-15 0
Cyclamens, 48's, per doz.	18 0-21 0

	s. d. s. d.
Crotons, doz.	30 0-45 0
Cyrtomium	10 0-25 0
Daffodils, 48's, per doz.	15 0-18 0
Erica melanthera, 48's, per doz.	24 0-30 0
—60's ,,	12 0-15 0
—72's ,,	8 0—9 0
Genistas, 48's, per doz.	21 0-24 0
Hyacinths, 48's, 3's, per doz.	15 0-18 0
—60's, per doz.	10 0-15 0
Marguerites, 48's, per doz.	21 0-24 0
Nephrolepis in variety	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's	5 0—6 0
—small	4 0—5 0
—72's, per tray of 15's	2 6—3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun	21 0-24 0
cuneatum, per doz. bun.	15 0-18 0
Anemone fulgens, per doz.	3 0—4 0
Asparagus plumosus per bun., long. trails, 6's	2 0—2 6
med. sprays	2 0—3 0
short ,,	0 9—1 3
—Sprengeri, bun. long sprays	2 0—2 6
med. ,,	1 6—2 0
short ,,	0 6—0 9
Azalea, white, per doz. bun.	4 6—5 0
Camellias, 12's, 18's, per box	2 0—3 0
Carnations per doz. blooms	2 0—3 6
Croton leaves, per doz.	1 9—2 6
Daffodils, Golden Spur, per doz. bun.	2 6—3 6
—King Alfred, per doz. bun.	6 0—8 0
—Sir Watkin, per doz. bun.	3 0—5 0
—Victoria, per doz. bun.	4 0—6 0
—princeps, per doz. bun.	2 6—3 0
—Emperor, per doz. bun.	4 0—6 0
—Double Van Sion, per doz. bun.	5 0—6 0
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	15 0-18 0
Freesia, white, per doz. bun.	2 0—2 6
French Flowers—	
—Acacia (Mimosa), per doz. bun.	6 0—7 0
—Anemones, mixed, doz. bun.	5 0—6 0
— — double pink doz. bun.	2 0—3 0
—Myrtle, green, per doz. bun.	1 6—2 0
—Ranunculus—	
—double scarlet	6 0—8 0
—Violets, Parma, per bun.	1 6—2 6
—Ruscus, green, per pad	6 0—8 0
—Stock, double white, per doz. bun.	4 0—4 6
Heather, white, per doz. bun.	6 0—9 0
Hyacinths, white, large, doz. bun., 6's	9 0-12 0
Iris, Spanish blue, per doz. blooms	3 0—4 0
—yellow, per doz. blooms	2 6—3 0
—mauve, per doz. blooms	2 0—2 6
Lilac, white, per doz. stems	4 0—8 0
—mauve, per doz. sprays	5 0—6 0

	s. d. s. d.
Lilium longiflorum, long, per doz.	3 6—4 0
—speciosum rubrum, long, per doz. blooms	4 0—4 6
—short, doz. blooms	3 0—3 6
Lily-of-the-Valley, per doz. bun.	24 0-30 0
Narcissus Soliel d'Or, per doz. bun.	3 0—3 6
—Grand Primo, per doz. bun.	3 0—4 0
—ornatus, per doz. bun.	5 0—7 0
—Elvira, per doz. bun.	6 0—9 0
—Grand Monarque, per doz. bun.	4 0—5 0
—Cornish White, per doz. bun.	3 0—3 6
Orchids, per doz.	
—Cattleyas	24 0—36 0
—Cypripediums per dozen blooms	6 0—8 0
Primroses, per doz. bun.	1 6—2 6
Richardias (Arums), per doz. blooms	5 0—6 0
Roses—	
—Columbia	12 0-15 0
—Richmond, per doz. blooms	5 0—8 0
—Madame Butterfly, per doz. blooms	5 0—6 0
—Golden Ophelia, per doz. blooms	6 0—7 0
—Mrs. Aaron Ward, per doz. blooms	5 0—6 0
Smilax, per doz. trails	4 0—5 0
Star of Bethlehem (Allium), per doz. bun.	2 6—3 0
Tulips, per doz.	
—single white	18 0-24 0
— — yellow	24 0-30 0
— — scarlet	21 0-24 0
— — pink	18 0-21 0
—terra-cotta, per doz. bun.	21 0-24 0
—Murillo, per doz. bun.	18 0 21 0
—Couronne d'Or, per doz. bun.	24 0 27 0
—Prince of Austria per doz. bun.	21 0-24 0
—Darwin, red, per doz. bun.	18 0-24 0
— — pink, per doz. bun.	18 0-24 0
— — mauve, per doz. bun.	18 0-21 0
Tulips, double—	
—Lucretia, per doz. bun.	24 0-27 0
—Tea Rose, per doz. bun.	24 0-27 0
—double white, per doz. bun.	— 24 0
Violets, per doz. bun.	2 0—4 0

REMARKS.—Supplies show a considerable increase and prices are on the down grade. The improved weather has resulted in an ample supply of red Richmond Roses which are very fine in quality. Other varieties now available are: Madame Butterfly, Golden Ophelia, Pink Ophelia, and Mrs. Aaron Ward. The quantities of Carnations now exceed the demand, and the prices fluctuate according to the quality. Irises are much improved in quality; supplies are increasing almost daily, and with falling prices there should be more demand for these flowers. Richardias (Arums) and Lilium longiflorum (formosum type) remain at a very low price. Sweet Peas, from home-growers, are the newest subject in this department, and they are fairly good in quality. There is still a glut of single Violets Princess of Wales. Trade shows a little improvement in the pot plant department. Flowering plants are now receiving more attention, and the fine quality, generally, calls for better demand, especially for Azaleas, Cyclamens, Genistas, Spiraeas, Mignonette and some fine pot-grown Rhododendrons.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, Virginian Albemarle	— 38 0
—Greening	24 0-26 0
—Oregon, Newtown	11 0-12 0
—Washington Winesap	12 0-14 0
—Nova Scotian—	
—Baldwin	18 0-24 0
—Nonpareil	18 0-24 0
—Ben Davis	18 0-24 0
—Stark, per barrel	15 0-18 0
British Columbian—	
—Newtown	14 0-17 0
—Bramley's Seedling	10 0-24 0
Bananas	17 0-21 0
Brazils, per cwt.	— 72 0
Grape fruit—per case	
—Blue Goose	30 0-40 0
—Jamaica	20 0-26 0
—Honduras	20 0-26 0
Belgian Grapes	2 6—3 0
Grapes, South African, per case	
—Gros Colmar	14 0-17 6
—Hannepoot, red and white	8 0-15 0

	s. d. s. d.
Grapes, South African—	
—Hermitage	8 0-10 0
—Waltham Cross	8 0-15 0
—Molinera	12 0-14 0
—Rosaki	8 0-14 0
—Barbarossa	12 0-14 0
Lemons, Messina, boxes	12 0-18 0
—Naples, per case	20-0-26 0
Nectarines, South African, per box	5 0—8 0
Oranges, per case—	
—Jaffa, per case	20 0-21 0
—Californian Navel	28 6-30 0
—Denia	18 0-30 0
—Murcia	16 0-25 0
Pears, South African, per box—	
—Louise Bonne of Jersey	6 0-10 0
—Beurré Hardy	7 0-10 0
Pines, case	18 0-30 0
Plums, per box—	
—Kelsey	8 0-10 0
South African Peaches, per box—	
—Yellow Flesh	3 6—4 0
—White Flesh	5 0-12 0
Strawberries (forced)—	
—Special, per lb.	30 0-35 0
—Best, per lb.	20 0-25 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, Devon	4 0—5 0
—Cavaillon	3 6—4 0
—Special Lauris	6 0-12 0
—Best ,,	4 0—5 0
Beans, Forced—	
—Special	2 0—3 0
—Others	1 6—1 9
Beans, Madeira—	
—Finest	4 0—6 0
Beets, per cwt.	5 0—6 0
Belgian Chicory, per lb	0 3-0 3½
Cabbage, per doz.	2 0—2 6
Carrots, per ½-bag	4 0—6 0
Cauliflowers—	
—English, doz.	2 6—4 0
—St. Malo, crate	5 6—6 0
Celery, fan	1 6—3 0
Cucumbers, doz.	7 0-10 0
French Endive, per doz.	2 6—3 0
Leeks, per doz.	2 0—2 6
Lettuce, round, per doz.	2 0—4 0
—Flats, 3, 3½, 4 doz.	27 0-30 0

	s. d. s. d.
Mint, forced, per doz.	4 0—6 0
Mushrooms	
—cups	1 6—3 0
—Broilers	1 3—1 6
Onions—	
Valencia	11 0-12 6
Parsnips, per cwt.	4 6—5 6
Potatos—	
King Edward—ton	£9/10£10
—others, ton	£6 £7/10
—Algerian, per lb	0 2-0 2½
Potatos, New—	
—Guernsey	0 7—0 9
—Canaries, case	9 0-20 0
Radishes, per doz.	1 6—2 6
Rhubarb, forced, per doz.	1 6—2 0
—Natural	4 0—6 0
Savoys, per tally	8 0-12 0
Seakale, per punnet	1 9—2 6
Sprouts, Brussels per ½-bag	2 0—5 0
Tomatos—	
—English, per lb	— 6 0
—Canary Island	18 0-22 6
Turnips, per cwt.	4 0—5 0

REMARKS.—All departments of the market have reported more active conditions. Fruits from South Africa remain the leading feature, this week's consignments being particularly heavy, and including Peaches, Nectarines, Pears, Plums, Grapes and Pines. American and Canadian Apples are a shade better trade, although, so far as the few English Apples available are concerned, there is no demand except for first grade fruits of Bramley's Seedling. A few hothouse Grapes are arriving from Belgium, but their values are lower. Forced Strawberries are available but very dear. The few Tomatos received from the Worthing district are selling well. Cucumbers are becoming more plentiful each day, but the tone is good and prices firm. Forced Rhubarb has improved in value in spite of larger supplies of natural Rhubarb. Forced Beans are more plentiful and quotations are easier. New Potatos from Guernsey are selling well at improved prices, but new Potatos from Algeria will probably affect their prices. French Asparagus is a firm trade in spite of increasing supplies. Cauliflowers, which have been very cheap, are inclined to be better trade. The Mushroom section has been affected by largely increased supplies, and values are lower. French Lettuces are dearer although quantities are fairly heavy, the fine weather being favourable to a firm demand. Old Potato trade remains steady, with a demand for best sorts only.

GLASGOW.

Although price movements displayed a little irregularity the tone of the cut flower market was rather better during the past week. All the Daffodil supplies were grown out-of-doors and values were mostly in favour of buyers, Golden Spur and princeps being worth 2/- to 3/- per doz. bunches; King Alfred, 6/- to 9/-; Emperor, 4/- to 8/-; ornatus, 6/- to 8/-; and Narcissi, 2/- to 4/-. Tulips continue to be fairly plentiful and commanded the following prices: Madame Krelage, 10d. to 1/7 per bunch; double red, 1/4 to 1/6; double yellow, 1/3 to 1/6; Luisante and Couronne d'Or, 10d. to 1/3; White Hawk and William Copland, 1/- to 1/2; Lucretia, 10d. to 1/2; Tea Rose, 8d. to 1/2; Stanley, Bartigon and Flamingo, 10d. to 1/-; Murillo and Prince of Austria, 8d. to 10d.; and La Rêve, 7d. to 1/-. Prices of Yellow Irises fluctuated between 3/- and 4/- per dozen; and Wedgwood sold at 3/9 to 4/-. Richmond Roses made 4/- to 6/- per dozen. Carnations, 4/- to 5/- per dozen; Lilac, 1/6 to 1/9 per bunch; Richardias, 4/- to 6/-; Lilium longiflorum (Harrissii), 6/-; Lily-of-the-Valley, 2/6 to 3/-; Asparagus, 9d. to 1/6; Anemones, 4/- to 6/- per dozen, and Violets, 6d.

In the fruit market, Oranges increased further in value. Valencia 300's to 21/- to 24/- per case; 360's, 17/- to 20/-; 240's, 23/- to 25/-; 420's, 26/- to 28/-; 714's, 28/- to 30/-; Jaffa 144's, 22/-; 240's and 180's, 24/-. The value of Porto Rico Grape Fruit varied from 20/- to 23/-; Apples, on the other hand are cheaper, Winesap extra fancy being 14/- per case; fancy, 11/- to 13/-; Newtown, 13/6 to 15/-; Ben Davis, 16/- to 23/- per barrel; Baldwin and York Imperial, 18/- to 22/-. South African fruit also declined in value, especially yellow-flesh Peaches, which were sold at 3/- to 4/- per tray and freestone at 5/- to 6/-. The prices of white Grapes were steady at 10/- to 14/-.

Any changes in the prices of vegetables were in a downward direction. Dutch Lettuces, 30's, realised 6/6 to 7/6; French 24's, 6/- to 8/-; Cauliflowers, 6/- to 7/- per crate; Endive, 3/- to 3/6; Radishes, 8/- to 3/6 per dozen bunches; Mushrooms, 1/9 to 2/- per lb; Chicory, 4d. to 5d.; Madeira Beans, 3/6 to 4/- per box; Dutch Cucumbers, 6d. to 10d.; English Cucumbers, 10d. to 1/2; Rhubarb, 32/- to 34/- per cwt.; round Carrots, 6d. per bunch; and long Carrots, 10d. to 1/-.

TRADE NOTE.

FOR the South Lincolnshire flower traffic, the London, Midland and Scottish Railway is putting on a new type of brake van, with steel roof and concrete flooring, electric lighting, special heating apparatus, and corridor doors. Each van is capable of carrying five tons of flowers, is fifty feet long, and mounted on four pairs of wheels. The flower freightage from the L.M.S. depot at Spalding has already exceeded that of the corresponding weeks of last year's forced-bloom season, and it is expected that a train of ten new brake vans will be available at Spalding to cope with the special Easter traffic.

SCHEDULES RECEIVED.

BATH AND DISTRICT HORTICULTURAL SOCIETY.—Show to be held on July 8 and 9, in the Sydney Gardens, Bath.—Secretary, Mr. F. J. Cashnella, 7, Cambridge Place, Bath.

DUNDEE HORTICULTURAL SOCIETY.—Summer exhibition, to be held on August 25, 26 and 27, on Magdalen Green; Chrysanthemum exhibition to be held on November 18 and 19, in the Drill Hall.—Secretary, Mr. J. M. Martin, 53, West Port, Dundee.

ABBEY PARK FLOWER SHOW.—Thirty-eighth exhibition, to be held on August 2 and 3.—Superintendent, Mr. R. Lisle, Abbey Park, Leicester.

BIDEFORD AND DISTRICT HORTICULTURAL SHOW.—Annual Show to be held in The Market, Bideford, on Wednesday, November 2.—Secretary, Mr. H. Page, 18, Chanter's Lane, Bideford.

NATIONAL CARNATION AND PICOTEE SOCIETY.—Exhibition to be held at the Royal Horticultural Hall, on Tuesday, July 19; exhibition to be held in conjunction with the Forest Row Horticultural Society, at Kidbrook Park, Sussex, on Saturday, July 23.—Secretary, Mr. E. G. Lowe, 147, Melrose Avenue, N.W.2.

GARDENING APPOINTMENT.

Mr. M. S. Fosser, for nearly twenty years gardener at Umberslade Hall, Warwickshire, and lately at Gledhow Hall Gardens, Leeds, as gardener to the EARL OF FAVERSHAM, at Duncombe Park, Helmsley, Yorkshire. (Thanks for 2/- for R.G.O.F. Box.—EDS.).

CATALOGUES RECEIVED.

J. E. HARRISON AND SONS, Darras Hall Nurseries, Ponteland, Nr. Newcastle-on-Tyne.—Violas.

E. P. DIXON AND SONS, LTD., Hull.—Farm Seeds.

H. HANCHET, Nutfield Nurseries, Crab Hill Lane, South Nutfield, Surrey.—Seeds.

JAMES MACDONALD, Harpenden, Herts.—Lawns and Sports grounds.

Foreign.

GOOS AND KOENEMANN, Nieder-Walluf a Rheim.—Plants.

VILMORIN ANDRIEUX ET CIE., 4, Quai de la Mégisserie, Paris.—Plants.

THE
Gardeners' Chronicle
No. 2101.—*SATURDAY, APRIL* 2, 1927.

CONTENTS.

Alpine garden—
  Alyssum serpyllifolium 228
  Hacquetia epipactis 228
  Saxifraga Irvingii ... 228
Amateur Flower Show at Vincent Square... 224
Blackburn, Mr. A. ... 224
Bog garden—
  Butomus umbellatus 228
  Lysichitum camtschatcense ... 228
Books, notices of—
  Citrus Fruits ... 232
Budde, Mr. J. K., retirement of ... 224
Bulb garden—
  Tigridias 228
Chrysanthemum congress in Paris ... 225
Coniferae, the newer... 230
Daffodils at Lanarth... 223
Flower garden—
  Annuals 228
  Salvia Harbinger from seed ... 228
Fruit garden—
  Biennial cropping of Apples 236
Fruit register—
  Pear Maréchal de la Cour 236
Garden architecture... 223
Gardener, annuity for a 225
"Gardeners' Chronicle" seventy-five years ago 225
Gardeners' Royal Benevolent Institution, bequest to ... 224
Gentians 237
Hardy flower border—
  Chelones 228
Horticultural Club ... 223
Indoor plants—
  Lachenalia Nelsonii 229
  Lachenalias ... 229
Iris unguicularis ... 237
Kew, notes from ... 231
Lilies at Ottawa in 1926 233
Lilies on the Cotswolds 233
Melilotus species ... 237
National Auricula and Primula Society ... 224
Obituary—
  Crombie, David ... 239
  Dewing, F. 239
  Lefebvre, Paul ... 239
Onions, Tree 237
Oranges in pots ... 236
Parks and gardens, public 236
Primrose, the blue ... 232
Richardia, root rot of 234
Shrewsbury Floral Fête 224
Societies—
  Birmingham and Midland Gardeners' 239
  British Carnation ... 238
  Glasgow and West of Scotland... ... 239
  Ipswich and District Gardeners' ... 239
  Reading and District Gardeners'... 239
Spring, a late... ... 223
Trees and shrubs—
  Ornamental Maples 229
Trenching, deep ... 237
Vegetable garden—
  Endive 236
  Skirret 236
Vilmorin establishment, the 232
Vita glass 237
Week's work, the ... 226

ILLUSTRATIONS.

Blackburn, Mr. Arthur, portrait of 224
Bole of Japanese Larch showing protruding roots ... 230
"Daily Mail" Gold Cup... 238
Italian Garden at the Ideal Home Exhibition... ... 237
Lachenalia Nelsonii at Woburn Place, Addlestone ... 229
Narcissus Tregoose 227
Rhododendron virgatum... 225
Richardia, root rot of 234, 235
Sophro-Laelio-Cattleya Mikado... 231

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 46·1°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 30, 10 a.m. Bar. 29·7. Temp. 51°. Weather, Cloudy.

A Late Spring. To impatient gardeners—if such incompatibles exist—the tarrying of spring is a severe disappointment. Except the early ones, and those only in favoured places, the Daffodils definitely refused to take the winds of March with beauty, and until the burst of sunshine on two recent balmy days, plants generally were at least two weeks behind their ordinary time table. It is true that there are some plants which seem to ignore or even revel in seasonal inclemencies. Thus we have never seen a more lavish display of blossom than that which covered Rhododendron praecox in February of this year, and other yet earlier Rhododendrons have, it appears, flowered well; but one swallow does not make a summer, and we learn that the prospects of blossom on later-flowering Rhododendrons is poor, not only in less favoured parts of the country, but also in Cornwall. The knowledgeable in these things attribute the paucity of blossom buds to the inclemency of the weather during last May—so long are the shadows which weather casts on vegetation. There can be little doubt but that the lateness of the present season is due to a combination of two causes. The soil which has been so drenched during the winter is still cold and although perhaps the air has not been very cool during the day—albeit it has certainly seemed so to humans—it has been cold at night. We think, moreover, that the extreme and constant humidity of the air during the day has made it cold for blossoms. For the latent heat of water is great, and we can easily imagine that each time a blossom bud began to perform the preliminaries to its unfolding, its activities were rendered nugatory by the humidity of the air. As thus: whereas the older parts of plants are, as compared with animals, of sluggish respiratory activity, the young parts of plants—flower buds and growing tissues—generally respire at least as actively as do animals. Now respiration is an energy-releasing process, and of the energy released by that internal combustion process called respiration, not a little takes the form of heat, which heat must, of course, quicken growth. Since, however, a watery blanket has enfolded our plants during these recent months, the heat produced by each floral essay in respiration has been absorbed by the water, and there has been none left to help the flower itself to expand. These somewhat remote reflections were forced upon us by the curious behaviour of a pleached avenue of Prunus Pissardii, which came under our observation this spring. The trees were full of blossom bud. Many branches had to be removed in order to complete the overarching of the trees. These were carried off to London and stood in water in the gloom and warmth of a London flat. The trees in the gardens just shuffled through their flowering time pursued and overtaken by premature leaf-growth, so that the brave show which this pleached avenue usually presents in spring was not realised this year. Yet the branches standing in water in the room have been and still are spangled profusely with blossom; even those which received no direct daylight. The relatively dry air and the congenial temperature which obtained within doors encouraged the flower buds to develop, whereas the saturated state and lower temperature of the open air rendered naught the lavish preparation which the trees had made for flowering. Anyone who walked along Piccadilly recently—say on March 22—saw vegetation working a like miracle. The day before there was no green in the groups of Thorns. On that day, when the sun shone and the air was drier, the buds burst and opened widely, almost visibly pouring out the cataract of green. So it happens every year in certain tropical countries where wet and dry seasons alternate. Here we only rarely see such sharp transitions. The importance which we have ascribed to the high moisture content of the atmosphere in contributing to the lateness of the present spring is, of course, conjectural, but it receives powerful support from the well-known fact that many greenhouse plants may be kept from flowering by maintaining a high degree of humidity in the air about them. It would be a pretty task for the plant physiologist to measure comparatively the rate of respiration of leaf and flower buds, and to determine the temperature at which they severally unfold. Such measurements would, we think, prove decisively whether these views are right or wrong.

Botanical Specimens for the Liverpool Museum.—Mr. W. H. Stansfield, of Southport, has presented a fine collection of botanical specimens to the Liverpool Library Museum and Arts Committee. Upwards of six hundred species and varieties of Ferns, chiefly exotic, are included, together with an almost complete collection of mounted and named specimens of varietal forms of British Ferns collected by the donor, who has a special knowledge of our native Ferns and their variations, and a wide acquaintance with alpine plants.

Garden Architecture.—On Monday evening, March 21, at a general meeting of the Architectural Association, at 35, Bedford Square, W.C.1, Mr. Gilbert H. Jenkins, F.R.I.B.A., read a paper on "Garden Design," illustrated with a number of lantern slides showing views of some well-known gardens in this country and on the Continent, and also some modern gardens designed by Mr. Guy Dawber and others. Mr. Jenkins remarked that since the war it had been necessary in many gardens to reduce the cost of upkeep, and this had had a marked effect on the general style of gardens. The vogue of lawn tennis had influenced the planning of many gardens, as the courts had to be provided for and screened from the rest of the garden. He also dwelt at some length on the subject of the woodland garden. An interesting discussion followed the reading of the paper.

Horticultural Club.—Following a Dinner of the Horticultural Club on Tuesday, April 5, at the Trocadero Restaurant, Piccadilly Circus, Mr. W. B. Cranfield, President of the British Pteridological Society, will deliver an address on "British Ferns and Their Varieties," illustrated by lantern slides. The Club dinners and lectures of the present session have been most successful. At the recent meeting of the Committee, twelve new members were elected, including Sir William Lawrence, Treasurer of the Royal Horticultural Society; Mr. A. Simmonds, Assistant Secretary, Royal Horticultural Society; Mr. F. G. Preston, Superintendent, Royal Botanic Garden, Cambridge; Mr. R. Findlay, Keeper of the Royal Horticultural Society's Garden, Wisley; Mr. A. J. Cobb, Lecturer and Director of the Horticultural Department of the University of Reading; Mr. T. Hay, Superintendent, Hyde Park; Mr. C. T. Musgrave, and Mr. W. R. Oldham.

Daffodils at Lanarth.—An interesting event, from the growers' standpoint, took place on a recent Friday, when Mr. P. D. Williams invited a number of Penzance growers to Lanarth St. Keverne, Cornwall, to see his collection of Narcissi. The party was accompanied by the Rev. A. T. Boscawen, Chairman of the Western Commercial Horticultural Show; Mr. H. W. Abbiss, Horticultural Superintendent for Cornwall; and Mr. Gunnigham, who is in charge of the Experimental Station at Gulval. The gathering was very representative of the growers of the district, who not only had the privilege of seeing many of Mr. Williams' new creations, but obtained many valuable cultural hints. Mr. Williams emphasised the importance of removing shelter after flowering, and showed the growers how the Narcissus fly bred where shelter was not removed. He also told them how important it was for bulbs to be graded for planting purposes. During the tour the party was particularly impressed by Godolphin, a very fine trumpet Daffodil; Fanfare, with a fine, self-yellow trumpet; and Bonython, another very bold and beautifully coloured trumpet variety. The size and vigour of the new early-flowering variety, Magnificence, arrested attention; this is earlier than Henry Irving, of better constitution and promises to replace that well-known sort. Another useful variety was Boswyn, which appears to fill the gap between Henry Irving and Golden Spur. Other varieties much admired were Hospodar, Medusa, Charles I, White Nile, Tunis, Tregoose—a variety with orange colouring in the cup—(see Fig. 112) and Kennack. The last-named variety has done well in New Zealand, where it has taken many premier awards. Only a few Daffodil varieties are grown by Mr. Williams on a commercial scale, and these include Croesus and Sunrise. Not only was the visit interesting from the commercial bulb-growers' standpoint, but the tour of Mr. Williams' garden afforded evidence of the way in which tender shrubs appreciate the mild Cornish climate. Plants greatly admired were Rhododendron racemosum and R. caucasicum hybrids; Prunus incisa, Osmanthus Delavayi, and Myrtus apiculata, with its brilliantly-coloured, brown wood. The party was entertained to tea by Mr. and Mrs. Williams, and a very interesting discussion followed, which was considerably enhanced by the observations of Mr. Douglas Pennant, who stressed the importance of the experimental side of the growers' work, and pointed out that the growers in the Lea Valley were wonderfully well-served by their Cheshunt Experimental Station. Votes of thanks were accorded to Mr. and Mrs. Williams by the Rev. A. T. Boscawen, who, in turn, was thanked by Mr. Abbiss for organising the trip.

Pruning Hardy Shrubs.—The subject of the lecture at Vincent Square, on Tuesday next, April 5, at 3 p.m., is "The Pruning of Hardy Shrubs," by Mr. Arthur Osborn, Royal Botanic Gardens, Kew. In addition to lantern slides the lecture will be illustrated by specimens of unpruned and pruned shoots, showing the varied methods of pruning which are desirable in a representative collection of flowering deciduous and evergreen shrubs.

Tewkesbury Daffodil and Spring Flower Show.—In a schedule of fifty-two classes the Tewkesbury Daffodil and Spring Flower Society provides no fewer than twenty-seven for Daffodils alone, the others being arranged for Cinerarias, Primulas, Amaryllis, Cyclamens, Richardias and other pot plants, and for Polyanthuses, wild flowers and miscellaneous groups. The prizes include several silver vases. The exhibition will be held in the Town Hall, Tewkesbury, on Thursday, April 14; the Hon. Secretary is Mr. J. S. Gannaway, Eastville, Ashchurch Road, Tewkesbury.

Retirement of Mr. J. K. Budde.—Our readers will recollect that in our issue of March 27, 1926, we gave a portrait (on p. 224) of Mr. J. K. Budde, the Curator of the University Botanic Garden of Utrecht, Holland, at the same time announcing the news of his approaching retirement under the age-limit of sixty-five years. Although Mr. Budde was due to retire last November, he has, at the request of the University authorities, consented to remain at his post until the present time; but this month (April) he will probably be definitely leaving the scene of his labours for so many years, and starting on the journey to Buitenzorg, Java, which he has long intended should be the first use he would make of his well-earned leisure. Mr. Budde has a very large circle of friends, both in his own and in foreign countries, and some of these are getting up a testimonial to him, which it is thought should take the form of a purse of money, especially in view of the heavy expense involved by his projected trip to Java. The matter is in the capable hands of Mr. A. J. Labouchere, Maliebaan 14, Utrecht, Holland.

Roof Garden at May Fair Hotel.—A roof garden on a large scale is a feature of the new May Fair Hotel, in Berkeley Square. It has been laid out and will be maintained by Mr. George G. Whitelegg. Nearly 9,000 Tulips, 10,000 Daffodils and brilliant displays of flowering shrubs and trees are provided, while shrubs in tubs are placed here and there about the paved and grass-edged walks.

Midland Daffodil Show.—The Midland Daffodil Society will hold its exhibition at Birmingham on April 21 and 22. Schedules may be obtained from the Secretary, Mr. Herbert Smith, 19, Tenby Street North, Birmingham.

Amateur Show at Vincent Square.—The schedule for the Amateur Show to be held by the Royal Horticultural Society at Westminster, on June 28 next, is an interesting one, and should encourage a keen competition among amateurs. There are no fewer than ninety-five classes, arranged in three groups: (A) open to all amateurs; (B) open only to those amateurs who do not regularly employ more paid assistants in the garden than one gardener and one boy; and (C) open only to those amateurs who employ no gardener, but occasional employment of outside assistance for heavy work, such as digging or trenching, shall not prevent an amateur from competing in this division. The classes for Roses have been increased from seven to sixteen, while new classes have been adopted for flowering sprays of hardy shrubs, alpine plants, Liliums, Water Lilies, Rhododendrons, new species introduced since 1920, and new plants of garden origin raised since 1920. Substantial prizes are offered and special cups will be awarded to the most successful competitor in each division.

Mr. Arthur Blackburn.—To the many attractions it already possesses, Blackpool will add a big flower show during July. As this exhibition will be held in Stanley Park, it will necessarily draw special attention to the Parks and Open Spaces of this popular seaside resort. The Superintendent of the Parks and Open Spaces and Cemetery is Mr. Arthur Blackburn, who has also been appointed Manager of the Flower Show. He is a native of Cumberland, and commenced his gardening career at Brent House, Penrith, and continued it at Calthwaite Hall, before serving for four years under his father at Underscar, Keswick. From Underscar he went to Kew, where he stayed for two years-and-a-half; then followed periods of service in a private garden at Derby and at Queen's Park, Glasgow, ere he entered the Parks Department of Swansea, where he served for eight-and-a-half years as Chief Assistant to Mr. D. Bliss, until he received his appointment at Blackpool in March, 1918. When Mr. Blackburn went to Blackpool a Parks Department could hardly be said to exist, but rapid developments have taken place during his tenure of office, and for the past four-and-a-half years he has been engaged in collaboration with Messrs. T. H. Mawson and Sons, in laying out 230 of the 361 acres of Stanley Park, at an estimated cost of £170,000. Nine other open spaces, including the foreshore, come under Mr. Blackburn's charge. He is also Registrar of the Cemetery and has done considerable organising work in connection with the Blackpool Carnivals. Some evidence of the high esteem in which Mr. Blackburn is held by his confrères is shown by his appointment as Secretary to the newly formed Association of Parks Superintendents. Fortunately, Mr. Blackburn is in the prime of life, and an enthusiastic worker and organiser.

MR. ARTHUR BLACKBURN.

Bequest to the Gardeners' Royal Benevolent Institution.—The Treasurer desires to acknowledge with thanks from the Executors of the late Mrs. M. A. Monro, J.P., receipt of a legacy bequeathed by her to the above Institution on the following conditions: "To the Gardeners' Royal Benevolent Institution, of 92, Victoria Street, Westminster, Five Hundred Pounds, to be called the 'Mrs. Geo. Monro Fund,' the annual income from which shall be applied by the Trustees of the said Institution in providing an annual pension in accordance with the regulations of the said Institution or otherwise as my Trustees shall approve." The late Mrs. M. A. Monro was the widow of the late Mr. Geo. Monro, V.M.H., who was a member of the Committee of Management of the Gardeners' Royal Benevolent Institution for forty-five years.

Shrewsbury Floral Fete.—The Committee of the Shropshire Horticultural Society is offering several prizes of unusual interest, to be competed for at the Shrewsbury Floral Fête, on August 17 and 18. There are bronze Japanese works of art, five in number, offered respectively for a collection of Orchids, a collection of Carnations, a collection of Roses (a beautiful, finely-inlaid jardinière), a collection of Gladioli, and twenty-four dishes of fruits. All these "trophies" are illustrated in the schedule now obtainable from the Secretary, Mr. W. G. Brazier.

National Auricula and Primula Society.—The Southern Section of the National Auricula and Primula Society has completed its fiftieth year, and a special jubilee issue of the *Report* has been published to mark the occasion. The Society originated in a decision to hold an exhibition in London in 1877, and a Committee was appointed with Mr. Francis Whitbourne as President, Mr. Charles Turner as Vice-President, and Mr. Dodwell as Hon. Secretary. At a subsequent meeting, Mr. Turner reported that the Crystal Palace authorities had agreed to make arrangements to hold the show on April 24, 1877, and offered a donation of £10 to the prize fund. The exhibition was held on the date mentioned and was said to be "the grandest display of these interesting, old-fashioned flowers which has ever been held in London or elsewhere." The original schedule varied little from that in force to-day, except that it included more classes, for apparently the Society was then in better funds than at present, as upwards of £60 was promised towards the necessary prizes and expenses. The Society continued to hold shows for some years at South Kensington, and then migrated to the Drill Hall of the London Scottish Rifles, and later to Vincent Square, where the shows are still held, the exhibition for this year being fixed for April 26 and 27. Some prominent florists have been connected with the Society, including the Rev. F. D. Horner, James Douglas, Charles Turner, Ben Simonite, Samuel Barlow, Richard Dean, J. T. Bennett-Pöe and W. Sarjent. The veteran Sir John T. D. Llewelyn still holds the office of President, and the members include a small, but enthusiastic band of lovers of these old-fashioned flowers, although we regret to see that the income for 1926 from subscriptions only amounted to a little over £27. The *Report* includes illustrations of some notable show varieties of Auricula, for which the Society is indebted to Mr. J. J. Keen, who has also written an interesting summary of the history of the Society, entitled, "A Look Backward," and he describes many of the most notable varieties. Those who would like to grow the old florists' Auricula will find some very valuable hints on the cultivation of the flower in an article entitled, "Work Month by Month." The Secretary, Mr. Arthur S. Hampton, 63, Tilehurst Road, Reading, states that copies of the *Report* are available to non-members at a cost of 1s. each. Those who love old-fashioned flowers will learn from the *Report* the seven points which comprise the standard of excellence in the show Auricula.

Opening of Beddington Park.—Last Saturday, Beddington Park, in its entirety, was formally opened to the public. In 1925, rather over thirteen acres of the park were purchased by the Beddington and Wallington District Council, and now eight-four acres, at a cost of £21,000, have been added. Most of the land will remain as park land, but several acres have been laid out for various sports and games.

The Public Taste in Potatos.—At the Ideal Home Exhibition the Ministry of Agriculture arranged a demonstration each evening of the various ways of cooking Potatos for the table, and at each demonstration a short address was given on various points of interest in connection with this vegetable. On Tuesday, March 15, the discussion centred on the public taste in Potatos, and ladies present at the demonstration were invited to express their particular likes and dislikes in the matter of texture and colour of cooked tubers. Of two hundred votes recorded, eight-five per cent. showed a preference for a white, floury Potato for general household purposes, and fifteen per cent. for a light-coloured, waxy Potato. No vote was recorded in favour of a dark, waxy type. It is stated that in France and Spain yellow-fleshed, waxy Potatos are preferred, whilst in Germany, waxy, almost soapy Potatos, are most popular. Scotland and Ireland prefer a white, floury Potato, but in London the consumers as a whole, and especially the catering trade, are said to be less partial to the floury type than formerly, and prefer a firm, close textured Potato. Connoisseurs are generally agreed that the finest flavour is found in the yellow-fleshed sorts, especially amongst the earlies, and that some of the modern, white, mealy Potatos are not nearly so finely flavoured as many of the older sorts. In the trials of Potatos conducted by the Royal Horticultural Society at Wisley, good flavour is always regarded as a *sine qua non* of merit, and cooked tubers are tasted by the judges. Golden Wonder and Lady Llewelyn are two varieties notable for their fine flavour, but, unfortunately, growers have to consider other qualities, of which one of the most important is cropping, and high flavour does not always accompany a heavy yield.

Chrysanthemum Congress in Paris.—The twenty-seventh annual Congress of the French Chrysanthemum Society will be held in Paris this year, from October 26th to the 28th, coinciding with the Autumn Centenary Exhibition of the French National Horticultural Society. The prize list will be an unusually interesting one; the Chrysanthemum section of the National Society has raised 700 francs for a special prize, the Delafon Cup is valued at 1,000 francs, and other special contributions to the list are being made by MM. A. Nonin, P. Féron, Ch. Souchet, and Gaston Clément. Among the subjects to be discussed at the Congress are the use of sulphur in compost; the employment of manures in the open air and in pot culture; pests and diseases, etc.

Annuity for a Gardener.—The late Miss Annie Clark Compton, of Alwyne House, Horsell, Surrey, who died on January 2, left an annuity of £200 to her gardener, Mr. H. Hampton.

Appointments for the Ensuing Week.—Sunday, April 3: Wakefield and North of England Tulip Society's meeting. Monday, April 4: Romsey Gardeners' Association's meeting. Tuesday, April 5: Royal Horticultural Society's Committees meet (two days); Horticultural Club Dinner and Lecture; Royal Caledonian Horticultural Society's meeting; Wimbledon Gardeners' Society's meeting. Wednesday, April 6: Brighton, Hove and Sussex Horticultural Society's show (two days); Falmouth Spring Flower Show (two days); Royal Horticultural Society of Ireland Spring Show (two days); Nottingham and Notts. Chrysanthemum Society's meeting; Pangbourne and District Gardeners' Mutual Improvement Association's lecture. Thursday, April 7: Manchester and North of England Orchid Society's meeting. Friday, April 8: Royal Horticultural Society of Ireland meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Sikkim Rhododendrons.*—Whoever reads the glowing description of the effect produced by miles of Rhododendrons in the Sikkim Himalaya by an eye-witness, the enterprising Dr. Hooker, will feel a wish that portions of our own scenery may be enriched by some, at least, of the Asiatic natives, in like manner as the Rhododendrons of Turkey and of America have become subservient to that purpose. It is certainly early to predicate, but I am of opinion that certain of the species and varieties will make themselves at home at this our English soil. Through the liberality of Sir Wm. J. Hooker, of the Royal Botanic Gardens at Kew, I was favoured with seeds of many of the kinds figured in the splendid work devoted to their illustration. Like other cultivators, my success has been but partial, some kinds not germinating at all, some freely, and some but partially. In a few instances the young plants were scarcely developed, and the signs of death became painfully obvious; some remained in the seed-pans, and some were pricked out; some were kept warm and shaded; others warm, and a degree of light admitted; whilst others were exposed to the open air; and lastly, some were placed in a cold frame with a northern aspect. Some of the kinds, of which R. setosum may serve as an example, seemed to pine for their mountain air and pressure of snow; and so with all the variations of culture, death speedily ensued. This class of them, I fear, will resist all culture; and we must be content to know of them only by dried specimens or coloured engravings. Fortunately the most showy, if not the most curious, affect no such conditions, but appear to accommodate themselves to our frame culture—to our damp stove growing, and to the open air, and seem vigorous and healthy alike in each. The greater number of my plants have been kept during winter in cold frames—some planted out in the prepared earth, and some in pots; they are equally healthy and promising in each manner; but another portion having been planted in the open air, between rows of R. ponticum of the same age, afford the greatest interest. The sorts that have survived uninjured, and are even more robust, carrying darker leaves than ponticum, are: R. niveum, campylocarpum, fulgens, aeruginosum, alpine variety, and ciliatum. This latter plant has shown the tendency to sport which many plants do under culture, for amongst them are two plants with well-defined gold margins as bright as those of Hollies. Another species, the glaucum, and its dwarf variety, have both stood and braved the twelve degrees of frost equal to any of those before enumerated, but their foliage is thinner in texture, and the colour of their green less intense than any of their associates. This glaucum is so like Kalmia angustifolia, in a young state, in its foliage, that it might well have joyed in the name of Kalmioides, and as a consequence, if the plate be examined, the manner of inflorescence, as well as a modified form and colour will be apparent to that of Kalmia latifolia. But let me not be supposed to cavil at the nomenclature of the species; on the contrary, the union of the most remarkable persons connected with India, politically and scientifically, seems most fitting; uniting as it does the Aucklands, Dalhousies, the Campbells, the Wallichs, the Royles, the Hodgsons, etc., as it were into one bond, and whose united efforts were directed to the advancement of the civilisation and the extension of science, both in Asia and the rest of the world. *William Masters, Exotic Nursery, Canterbury, March* 31. *Gard. Chron., April* 3, 1852.

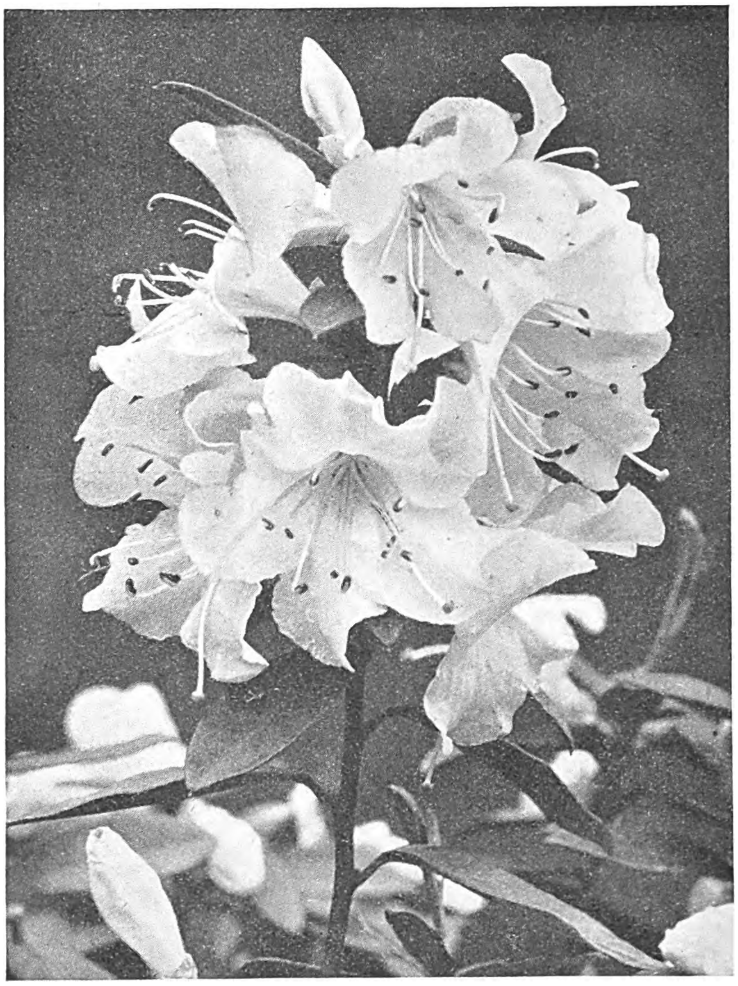


FIG. 111.—RHODODENDRON VIRGATUM (K.W. 6279).

R.H.S. Award of Merit, March 22. Flowers blush rose. Shown by Lt.-Col. L. C. R. Messel, Nymans, Sussex.

Publications Received.—*The Iris*, by John C. Wister; *Balancing the Farm Output*, by W. J. Spillman; *The Gladiolus*, by A. C. Beal. Orange Judd Publishing Company, New York, or Kegan Paul, French, Trubner and Co., Ltd., 68, Carter Lane, E.C. 4. Price $1.25 each.—*Catalogue of the Trees and Shrubs at Holford House, Westonbirt*, compiled by A. Bruce Jackson. Humphrey Milford, Oxford University Press, Amen House, Warwick Square, E.C. 4, Price £4 4s. net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Coelogyne.—Coelogyne cristata and its varieties are in bloom. This Orchid does not need to be disturbed at the roots very often, but specimens that have overgrown their receptacles or where the rooting medium is decomposed, should be turned out of their pots or pans, the old soil and dead roots removed, and the back pseudo-bulbs cut away, leaving only three behind each growing point. Pans are preferable to pots for this class of Orchids and, as Coelogynes are shallow-rooting plants, the pans should be filled quite half their depth with drainage material.

Compost.—The compost should consist of two parts Osmunda fibre to one of peat, and Sphagnum-moss cut up according to the size of the plants and the receptacles. The larger the plant, the coarser should be the material. In re-making the plants into specimens, a number of leads or growing points are necessary, and they should be arranged evenly over the surface so that the centre of the specimen is well furnished with growing points, and each new growth has room to develop. It may be necessary in some cases to use wire pegs to hold the pseudo-bulbs in position until the plants are re-established in the new material. After repotting them it is advisable to spray the plants overhead on bright days, and maintain a humid atmosphere around them, but water should be afforded the roots sparingly. Where numbers of these plants are grown, a few specimens should be repotted each year, as often after disturbance at the roots they fail to flower so freely or so strongly as when they are thoroughly established.

Other Species of Coelogyne.—The genus Coelogyne is a large one and contains a number of plants of horticultural merit, some one or more being in flower during the greater part of the year, hence the repotting of the different species will practically be spread over the twelve months. It is always safe to repot any plant that is in need of new rooting material whenever the new growths are about to develop fresh roots, as the plant at that stage receives the least check possible. A few, such as C. Massangeana and C. Dayana are, on account of their pendulous scapes, best grown in pans or baskets, in order that they may be suspended, to show their flowers to the best advantage. Coelogynes that inhabit hot, damp countries, should be grown in the warmest house; they embrace C. asperata, C. Rossiana, C. pandurata, C. Parishii, C. Micholitzii, C. Dayana, and C. Cumingii, while C. barbata, C. Mooreana, C. flaccida, C. sparsa, C. elata, C. graminifolia, C. ocellata, C. Gardneriana and C. speciosa may be grown in a house having an intermediate temperature. Shade is needed by all Coelogynes during the summer, and at no time should the compost be allowed to become excessively dry. Although during the resting season the water supply should be less both in quantity and frequency, sufficient moisture must be given to keep the pseudo-bulbs in a plump and healthy condition, as shrivelling is detrimental to the plants flowering satisfactorily.

THE KITCHEN GARDEN.

By R. H. Crookford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Seakale Sets.—The prepared roots may be planted in ground which has been thoroughly trenched and manured. Use a dibber to make the holes, and take care that the thongs are firm in the soil. The rows should be two feet apart and the sets one foot asunder in the rows. When the shoots commence to grow freely they should be thinned, leaving only one strong crown to mature. Use the Dutch hoe freely between the plants, and should the weather prove very dry, and especially on light soils, apply a dressing of salt.

Beetroot.—A few rows of the round or globe varieties of Beet may be sown in well-prepared ground, in a warm, sunny position. These will form a succession to those growing in frames. The bed should either be netted, or strands of black cotton placed alongside the rows. The latter is always the best measure if adopted before the young plants are attacked.

Potatos.—The planting of Potatos may now be proceeded with, though it will be wise not to plant on too large a scale for the present, especially in exposed situations, as the shoots of tubers which are sprouted quickly show through the soil after a few warm days, and, as May frosts often do much damage, caution must be exercised. When planting, do not bury the tubers too deeply or the crop will be weak and poor. Allow plenty of space both between the rows and also the sets, as light, air and warmth are all very necessary. Distances apart for strong-growing varieties should not be less than thirty inches by eighteen inches. Keep an eye on Potatos that were planted earlier and, should frost threaten, draw a little fine soil over any that are showing above ground.

Broccoli.—The heads of these plants are making rapid progress, and care should be taken to see that the curds are kept well-covered with the leaves of the plant, as frosts quickly damage them, and sunlight discolours them. Should the plants of later varieties appear to be stunted in growth, a sprinkling of sulphate of ammonia between the rows and hoed into the ground will stimulate their development.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Perpetual Carnations.—The object of stopping Carnations is to obtain bushy plants that will produce several flower stems at the same date. The time to carry out this operation depends entirely on the plants under cultivation, but it should not be practised at the actual time of potting. It should be done when the young plants are making good roots in their small pots, or be deferred until they have began to form roots when transferred to fifty-four-sized pots, but in any case it is not wise to allow the shoots to become hard before stopping them, or an uneven and disappointing growth will result. The young plants should be kept free from aphis by lightly fumigating the house on frequent occasions, otherwise the young growths will show signs of the neglect at a later period.

Browallia speciosa.—This useful plant may be raised easily from seeds and good examples obtained for decorative purposes by the month of August. This plant will thrive in almost any soil. When the receptacles are well-filled with roots liberal supplies of liquid manure are most beneficial to them. Although this Browallia may be propagated from cuttings, I always consider that seedlings grow more vigorously.

Camellias.—Although these plants are not so commonly grown as formerly, they are useful for the cool greenhouse. They may be grown either in pots or planted out in small borders and trained up unsightly walls. They thrive best in a house from which frost is just excluded. Plants growing in pots and needing repotting may be attended to now that the young growth is active. The compost may consist of equal parts of good fibrous loam and peat with sufficient broken charcoal and sand to ensure efficient drainage. Those planted out in borders may have a small portion of the surface soil removed and a top-dressing of sweet compost substituted.

Fuchsias.—Specimen Fuchsias that have been kept somewhat on the dry side during the winter may now be pruned, and attention given them with regards to potting or top-dressing, as the needs may be. If repotting is considered necessary, use a compost of good loam, leaf-mould and dried cow manure, after passing the latter through a fine sieve. These plants require liberal supplies of liquid manure when in full growth.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Thinning Grapes.—At this season of the year the thinning of Grapes will almost be a daily operation. It is hardly possible to state how many bunches a healthy vine should carry, as under-cropping as well as over-cropping should be avoided; much depends on the health and vigour of the vines. Judicious thinning not only ensures finer quality in the berries, but also has a bearing on the health of the vines. Some growers allow one bunch to each spur, but this is a very heavy crop indeed, no matter how good and plentiful the foliage may be. If they are good bunches, one third of those formed should be removed so soon as they are out of flower and the best bunches can be decided upon. The tendency of amateurs and beginners is to postpone this work, resulting in waste of the vine's energies. The Grapes of vines that have not been thinned early often shank or fall short in size of berry and bloom, which size of bunch cannot compensate for. The quality is also second-rate, and the crop does not in the aggregate weigh more than half the same number of bunches in which the berries have developed and finished to perfection. After the stoning period is too late for reducing the crop, but if the vines do not continue to make plenty of laterals, it is better to further reduce the bunches even then. Thinning is a skilful operation which can only be attained by practice and thorough acquaintance with the different varieties, and of certain vines of the same sort. The berries of free-setting varieties may be thinned immediately after they are well set. Muscats and others which require artificial pollenation should be allowed a little more time for the grower to see which berries take the lead, and so far as practicable those left behind should be removed, as stoneless berries never develop properly. A bold attack on these seedless berries generally results in a thinly-set bunch of Muscats becoming quite full enough of berries. Lady Downes, Alicante, Gros Maroc and Gros Colmar should be thinned until there is no danger of the berries touching each other tightly, otherwise their keeping qualities will be doubtful. Early and summer Grapes for immediate use do not suffer so much by being under-thinned as the preceding. Tying up the shoulders to increase the size of the bunch should, so far as possible, precede thinning.

Late Vines.—These vines are rather later than usual this year, and their development should be hastened by the use of a moderate amount of fire-heat; close the house early in the day and syringe with tepid water liberally twice daily. Late Grapes may be grown in a temperature of 55° on cold nights, 65° to 70° by day and 75° after closing the house, with sun-heat, from the time the buds begin to develop until the bunches are prominent. From this stage forward the temperature may be increased 5° at night and still more by day, with 65° as the minimum when the vines come into flower. Where all the border space has been filled with soil, apply a mulch of fresh, short, stable litter, including the droppings. The litter will not only provide the roots with food but be a never failing source of atmospheric moisture.

Early Vines.—So soon as the Grapes in the early house have finished stoning, examine the bunches for the last time and remove any small, seedless berries which may have been overlooked. Make a careful examination of the foliage and dry corners of the vinery for the presence of red spider. If laterals keep growing freely—the best proof of moderate cropping, pinch the stronger and allow the weaker to develop. Admitting a little air at night is an excellent preventive of scalding, but the ventilators should be closed early in the morning to economise fuel and to favour the early re-opening of the ventilators for the day.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Protection of Wall Trees.—The short spell of hot weather in the middle of March caused the flowers of Peaches and Nectarines to develop rapidly, and if the weather continues very cold the blooms may need protection. In favourable parts good crops of these fruits are produced annually without the aid of much protection, and when the flowers are strong and perfectly dry a few degrees of frost would seem to do them no harm. On the contrary, if they are wet and not very strong, cold, cutting winds and 5° or 6° of frost are quite sufficient to destroy the greater part of the best flowers. The trees may be protected by two or three thicknesses of fish-netting fastened on to the top of the walls and kept at a reasonable distance from the trees by the aid of light poles sunk in the ground three feet from the bottom of the brick-work, with the upper end resting on the top of the wall. Each pole should be made secure to keep it in position in stormy weather. If the cold is very intense, I usually place, in addition to the netting, a few branches of Portugal Laurel at intervals all over the trees, and remove them so soon as the weather is more favourable.

Figs.—Young Fig trees growing in pots and intended to be planted outside, should have their roots thoroughly soaked with water before turning them out of the pots. Select a warm situation for these trees, and provide plenty of drainage when preparing the station for planting. The soil should be sweet and mixed with plenty of old brick mortar. Disentangle the roots, trim away the ends of any that are long, spread them out, and make the compost firm. Water the soil if necessary to cause it to settle firmly. Fig trees require ample room for extension in order that they may produce good and regular crops.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Gladioli.—The Gladiolus may be planted over a long season, extending from February to the beginning of May, the time of planting depending on the locality and nature of the soil, as well as the requirements of the establishment. From the end of March onwards may be considered the most suitable time. The soil should have been well prepared in advance of planting. On light, dry soils the corms may be planted direct in the ground, but on heavy, cold, wet soils it is wise to surround them with sand or start them in pots, hardening the plants off and putting them in their flowering quarters during May. Gladioli are very useful for associating with other plants, as their slender, upright growth does not interfere with the other subjects. They are specially useful for interplanting with Paeonies and other kinds of early flowers.

Cannas.—These bold foliage plants are very effective, but as our summers are all too short for them, it is desirable to have well-grown plants ready for bedding out. The dry rhizomes should be taken from the store, divided, cleaned and placed in suitable-sized pots. If there is plenty of stock large clumps may be placed in six or seven-inch pots, and forty-eight-sized pots may be used for single crowns. They should be placed in a temperature of 60°. Very little water should be given the roots until growth is active.

Sweet Peas.—Seeds of Sweet Peas may be sown out-of-doors in sites previously prepared for them, while the plants raised indoors and carefully hardened off may be planted in their flowering quarters. Whether they are grown in clumps in the mixed border, or planted out in lines they should be set singly from six inches to twelve inches apart. Sweet Peas transplant very easily even if all the soil is shaken from the roots. They should have some support from slender twigs, and in many districts it will be necessary to protect them from sparrows.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Hardening Plants.—The time has arrived when many plants intended to be transferred to flower beds should be gradually hardened, and prepared for planting in the open. The sashes of the cold frames in which Pentstemons, Nepeta and Calceolarias are growing should be removed in the day-time, and on mild nights the frames may be ventilated freely, but mats or other protective materials should be ready at hand for use if a drop in the temperature threatens. Early Potatos are well advanced also, and they should be protected, or a few degrees of frost may ruin the crop, although few other plants are capable of making such a rapid recovery from damage by frost as the Potato. Peas and Cauliflowers, which have been raised under glass, should be set in a sheltered corner outside where, in emergency, they may be given protection if found necessary.

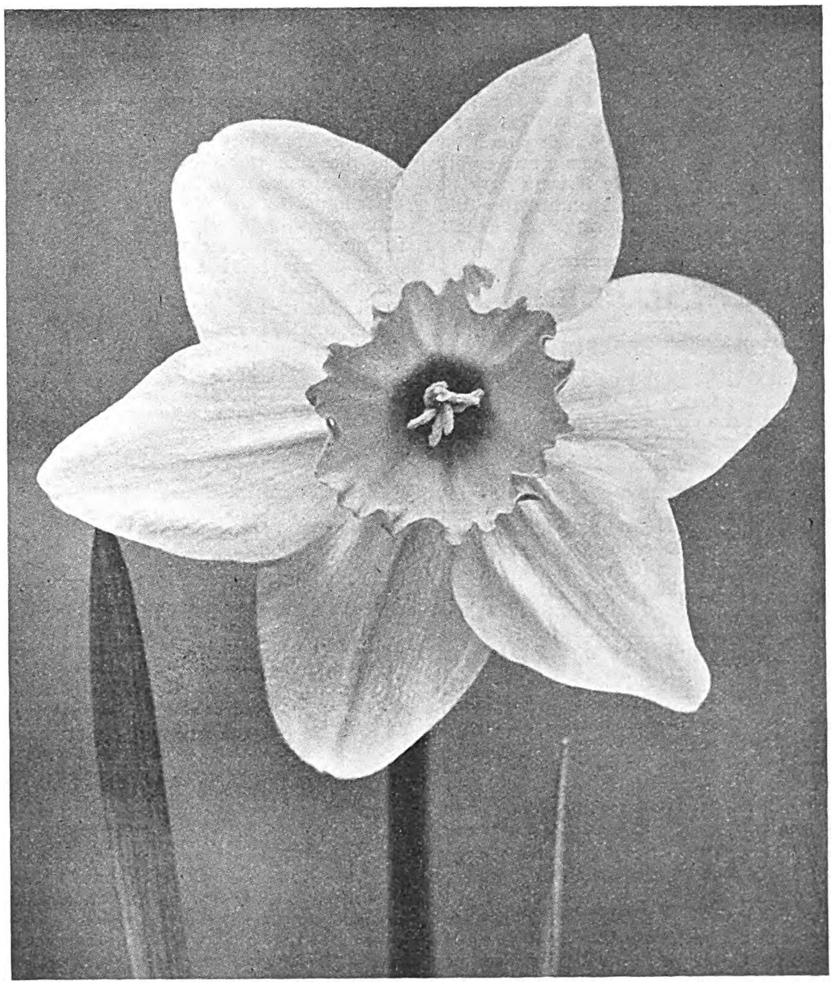


FIG. 112.—NARCISSUS TREGOOSE.

R.H.S. Award of Merit (for show purposes), March 22. Flowers yellow and orange.

Shown by Mr. P. D. Williams, Lanarth, Cornwall. (see p. 220).

Spring Bedding.—The beds and borders occupied by spring-flowering plants should have the surface soil stirred lightly, as it has become beaten down by the winter rains. Where such bulbs as Tulips, Hyacinths, etc., are largely planted, it has been difficult to do this earlier without damaging the growing shoots. These are all well above ground now, and the work may be done both expeditiously and safely, while borders filled with May-flowering Tulips, Spanish Irises, etc., may also be cultivated again freely. Where these last-mentioned have remained on the same site for a number of years, they will be greatly benefited by an application of some well-compounded manure pricked into the borders as the work proceeds, or a mulch of well-decayed manure may be spread on the surface where this would not be unsightly; where the bulbs have been recently planted and the soil is in good condition, this is not so necessary.

Rose-pruning.—The pruning of Roses may now be safely performed in most districts, and should be attended to immediately; in pruning for the production of large, individual blooms, the plants should be shortened severely leaving only two or three dormant buds to develop, each of which will produce a cluster of flower buds, which should be thinned to one bud. Where the Roses are grown for garden effect much less severe pruning is required and the shoots may be left with several dormant buds, according to the variety. In both cases all old and bark-bound wood should be first removed, and a selection made of the best of the young shoots at the base, reducing these in accordance with the object of the cultivator. These remarks apply to Hybrid Perpetuals, Hybrid Teas, and Tea or Noisette Roses, but there remains a large family of Roses which may be treated less severely with excellent results. These include the Provence and Moss Roses, the Damask Rose, the Chinese or monthly Rose, besides a number of stronger-growing species, such as R. sericea pteracantha, R. Moyesii, R. rugosa and R. rubrifolia, all of which are delightful subjects for the wild garden, and may be allowed to grow naturally, removing only old and exhausted wood in order to allow more room for the younger flowering shoots.

HARDY FLOWER BORDER.

CHELONES.

The Chelones are now mostly included under Pentstemon, but they are best known by their old names in most gardens. Of the true Chelones there are two species offered by the trade, and both of these make good and distinct garden plants for the herbaceous border. They are not difficult to cultivate in any good border, and form a distinct feature with the majority of the hardy plants of summer, when they bloom. Chelone Lyonii will attain to a height of about two feet, but I have never seen it quite so tall.

It produces purple-red flowers and is a capital subject where the less common hardy flowers are appreciated. The other species is C. obliqua, which also blooms in summer, and its flowering period extends into autumn. C. obliqua is about three feet high and its flowers are of a good violet-purple. There is also a pretty white variety, C. obliqua alba. These Chelones are increased by division or by seeds, when these can be obtained. I saw those of C. Lyonii but not of C. obliqua offered last year. Division of good-sized plants in spring or after flowering is past in autumn, is easily and safely performed. These good hardy flowers may be considered by all who are intending to add plants to their gardens this spring. *S. Arnott.*

ALPINE GARDEN.

ALYSSUM SERPYLLIFOLIUM.

Alyssum saxatile, the Rock Madwort, or Gold Dust, is a greatly prized plant for the rock garden, and the genus includes a few other choice alpines of which Alyssum serpyllifolium is one of the most beautiful. It comes near to A. alpestre and A. bracteatum, but is, I consider, the best of the three. It is quite prostrate, with miniature, grey, Thyme-like leaves, and small, rather pale, yellow flowers, which harmonise so well with the soft grey of the foliage.

It does best in a rather dry, sandy soil and should be planted on a flat or on a slightly sloping terrace or other place in the rock garden, a little below the level of the eye. It is a small plant I have known and loved since I first raised it from seeds some thirty-five or forty years ago. Seedlings are very easily raised from seeds sown under glass in spring. It may also be propagated by cuttings.

Plants may be purchased in spring and planted out in March or April to flower later in the season. It is a native of Spain, Mont Cenis, etc., and is perfectly hardy and perennial. *S. Arnott.*

SAXIFRAGA IRVINGII.

The Cushion section of the genus Saxifraga includes many choice subjects for the rock garden but few excel the delightful Rockfoil under notice.

It appeared at Kew in 1909, and is of hybrid origin, the parents being S. Burseriana macrantha and S. thessalica. It is a free grower, forming neat, little tufts, which, when in bloom, rarely exceed an inch in height. The popularity of this Saxifrage is due, to a large extent, to its free-flowering, and the pretty shade of the flowers. The latter, when first open, are a pale rose-pink, but with age they become white. So free is this plant in the production of its exquisite blossoms, that the small rosette or cushion is hardly visible.

S. Irvingii is at its best in March. In these days, many alpines are grown in pans, and although they are kept in the open the greater part of the year, they are introduced to the alpine house or cold frame for the flowering period. This Rockfoil is, indeed, a gem for this purpose, but it is also amenable to cultivation on the rock garden. It is a good plan to divide the stock, where this is possible, between the alpine house and rock garden, as this will prolong the flowering season.

A well-built rock garden will furnish the number of sites for S. Irvingii and similar subjects; a spot facing east or west, where plenty of air can reach the plant, is best suited to this charming Rockfoil.

Well-drained soil is essential, and the rooting-medium requires plenty of sharp grit added to it to allow water to drain away quickly; plant firmly. A few cuttings should be rooted annually to maintain a healthy stock. These will form roots in a shaded, cold frame, if placed in small pots containing sandy soil, and the best month for propagating is June. Old plants may also be lifted and divided a few weeks after they have flowered. *T. W. Briscoe.*

HACQUETIA EPIPACTIS.

This is a useful hardy and desirable plant, flowering during early spring, and suited to a cool, partially shaded corner of the rockery, where its close tufts of pale green foliage and quaint, button-like, golden-yellow flowers rest peacefully on the foliage. *W. Logan.*

BOG GARDEN.

BUTOMUS UMBELLATUS.

Few other of our native plants are more suitable for planting in the water garden, by the margins of lakes or along stream sides, than Butomus umbellatus, the Flowering Rush. It belongs to the Natural Order Butomaceae, although it is nearly related to, and is often included in Alismaceae.

It occurs wild throughout Britain rather locally, and is found growing in the water in ditches and at the sides of rivers and ponds.

Propagation is readily effected by division of the rhizomes. The Iris-like leaves are two or three feet long. The flowers are borne in umbels of twenty-five to thirty at the end of long stems in late summer, and are rosy pink in colour.

LYSICHITUM CAMTSCHATCENSE.

This beautiful hardy Aroid is useful for planting in the bog garden or close to the margins of a pond or lake.

The large leaves are produced from a thick, horizontal rootstock. In early summer the plant produces its inflorescences, each consisting of a stout flower-stalk, from six inches to twelve inches long, and rendered conspicuous by the very showy, bright yellow spathe.

It is easily propagated by means of offsets. A white variety is also in cultivation, but is not nearly so hardy as the type. *T. H. Everett*

FLOWER GARDEN.

ANNUALS.

When the ground is in good working condition, the opportunity should be taken to commence sowing seeds of hardy annuals. A special display of annuals may be made in the beds and borders especially set apart for them, and they are also invaluable for giving variety and filling vacant spaces in the herbaceous or mixed border.

Success with this class of plants—apart from proper soil conditions—depends very largely on thin sowing, and perhaps most important of all, early and drastic thinning. There is no comparison between weak and weedy plants resulting from overcrowding and those of the same species or variety that have been adequately thinned and thus allowed to develop to their fullest extent. Annuals generally are best grown on ground that has been deeply tilled, but a large amount of manure is not needed.

Half-hardy Annuals are usually sown indoors, but most of them may be grown successfully, especially in the south, from sowings made out-of-doors, provided the sowing is deferred until the end of April or the beginning of May. In dealing with half-hardy annuals indoors, many cultivators make the mistake of sowing too early, with the result that the plants often get spoiled before it is possible to get them out into their flowering quarters. Much better results are obtained from putting out quite small, healthy plants, which become established quickly, and in the end, give a much better display of flowers than larger plants that may have been spoiled by overcrowding. About the middle of March is a good time to sow annuals indoors. *J. C.*

SALVIA HARBINGER FROM SEED.

For years Salvias, particularly the dwarf, scarlet, bedding variety, Glory of Zurich, were raised by cuttings obtained from stock plants. In some seasons the stock plants were a source of danger in greenhouses as they are prone to attacks of red spider and act as hosts of the pest during the winter. For some years past I have grown the variety Harbinger from seeds and ceased to keep stock plants.

This Salvia will produce a good quantity of seeds, and it is an easy matter to secure an ounce or two from a bed of good plants. The seeds are best sown in sandy soil early in spring in the warmest place available, directly over the water pipes, or plunged in a hot-bed. The seedlings are not much addicted to damping off, and after pricking them out into boxes they should be placed in a warm, close house near the roof-glass. I have tried large, sixty-sized pots, also planting for the next shift in large boxes, three inches deep, and I find the box treatment gives the better result. The plants should be placed about five inches apart, and grown in soil consisting of loam and leaf-mould in equal portions, with a liberal quantity of sand. When they are well on the move, the hardening of the plants may be done fairly quickly.

I have in mind a circular bed here near the main road which contained 120 plants of this Salvia put out eighteen inches apart early last May, and from July to October this bed was a magnificent sight and a source of great interest to passers-by. The edging was a thin line of the grey-foliaged Mrs. Sinkins Pink. The bed by mid-August was one mass of bright green foliage topped by a blaze of scarlet. *G. W. Stacey, Chorleywood Cedars.*

BULB GARDEN.

TIGRIDIAS.

Although well-known, Tigridias are not grown so frequently as their merits deserve, for though their blooms last only about a day in perfection, they are singularly beautiful, and are borne in such quick succession that this defect may be overlooked.

Tigridias are not perfectly hardy, and though they may survive mild winters, are best lifted when the leaves die down in October, stored in sand, or tied in small bundles, and hung in a cool, airy, frost-proof place until the spring.

A sunny, sheltered situation suits them admirably, and they require a rich, well-drained soil. If a bed is specially prepared for them, the soil should be dug out to a depth of twenty-four inches, and about six inches of brick rubble placed at the bottom for drainage. Over this should be placed equal parts of rich loam and leaf-mould, with a little sand, thus making at least eighteen inches of good soil.

The bulbs may be planted three inches deep and six inches apart, placing a little sand under and around each. In dry weather they should be well watered, especially if this sets in before the foliage is well developed, in order that the plants may become strong before the flowering period, which is from about mid-summer until September. For ordinary culture a sheltered, sunny border, with a depth of at least eighteen inches of rich, well-drained soil, will suffice, but they well repay special treatment by flowering continuously and profusely for about two months.

The species commonly grown is T. Pavonia, with flowers about five inches across, gleaming in scarlet and orange, and shaped somewhat like those of an Iris. There are numerous beautiful hybrids, with flowers of brilliant hues, which include varied tints of creamy-white, yellow, crimson and purple. Most of them are self-coloured on the outer part of their broad, lower petals and deeply spotted in the middle. This quaint mottling and the rather curious shape of its flowers give the Tiger Lily a distinctive charm and render it worthy of a place in gardens. *James A. Paice.*

INDOOR PLANTS.

LACHENALIAS.

The Lachenalias are natives of South Africa. These bulbous plants are simple in their requirements and suitable for growing either in pots, pans or baskets. They make a pleasing display in the early months of the year. They should be potted towards the end of July or early in August, placing five or six bulbs in a five-inch pot. The compost should contain a little dried cow manure and sufficient sand in accordance with requirements. After potting them, place the plants in a cold frame. It is advisable not to water them until moisture is absolutely necessary, but they should be shaded and sprayed overhead occasionally until top growth appears, when every endeavour should be made to promote sturdy growth.

Where space is available during the winter in a cool house, the plants may be grown on a shelf or in some similar position near the roof-glass where the temperature does not fall below 35°.

Lachenalias thrive under cool treatment, but may be forced slightly when the flower spikes have developed. Watering should be done sparingly until the plants are growing freely, when copious supplies of moisture will be necessary until the foliage shows signs of dying down, when water should be withheld gradually.

The plants will be benefited by liberal feeding when the roots have filled the pots, especially during the period between the flowers fading and the foliage showing signs of ripening. When the plants are completely at rest place the pots on a shelf in full sun where they will derive benefit from a thorough baking. Varieties vary considerably in the rate they increase; fortunately, many are very prolific in this respect.

During the past few years considerable progress has been made in the development of new varieties, mainly due to the efforts of the late Rev. Joseph Jacob, the latest introductions being a decided advance over some of the older kinds, such as tricolor and Nelsonii.

Lachenalia pendula L. p. superba and L. Boundii comprise a distinctly early section commencing to flower about Christmas, even under cool treatment. These three Lachenelias are distinct, yet all alike have bright vermilion-coloured flowers, the tips of the bells tinged with green. The variety pendula superba flowers a little earlier than the other two.

Next in order of flowering is Spa, bearing beautiful, rich yellow flowers, slightly flushed with red. This variety is followed quickly by what may be termed the maincrop varieties which are at their best in March, and are represented by the following: Canada, pale primrose yellow, tips tinged green, one of the palest of this colour; Thibet, of a brighter shade of yellow than the last named; Africa, a variety of robust constitution, bearing orange-yellow flowers brightly tipped with red; Calcutta, another strong grower similar to the last, with the difference of the tips being a dull crimson; Leiden, a very distinct variety in its flower formation, the bright orange flowers being widely spaced on tall stems, which are dull brown; Arabia, with large, pale Primrose flowers, tipped with green, one of the best of its colour; Tipperary, one of the latest to flower, a blend of yellow, red and green shades, and Mandalay, bright orange, slightly flushed red, the bells being rather large.

When these newer varieties are better known interest in these somewhat neglected plants will be greatly stimulated. *J. W.*

LACHENALIA NELSONII.

The successful cultivation of Lachenalia Nelsonii is a very simple matter, provided the plants receive due attention at the proper time. So soon as the flowers fade, the flower-spikes should be removed and the plants placed on a shelf near the roof-glass in a vinery or Peach house. Here they should be kept well-watered and supplied with liquid manure twice a week until the leaves begin to turn yellow. So soon as this occurs, cease feeding and gradually reduce the water supply for two or three weeks, and then discontinue watering. Leave the tubers in the pots on the shelves, and subject them to a thorough ripening.

Towards the end of July the tubers should be shaken out of the pots and graded. Place nine or ten in a forty-eight-sized pot, using a compost of three parts good yellow loam to one of leaf-mould, with a good sprinkling of silver sand and a little bone-meal. Pot fairly firmly and place the stock in a cold frame. Afford shade to the pots from bright sunshine until growth appears, when the plants should receive all the light possible. During bright weather a light spraying of water, several times a day, will encourage growth. Carefully supply water to the roots and keep the plants cool, but guard against frost. In November, place the Lachenalias in a greenhouse, in a temperature of 45° to 50°. The accompanying photograph (Fig. 113) was taken on February 22, 1927. *Wm. Holden, Woburn Place Gardens, Addlestone.*

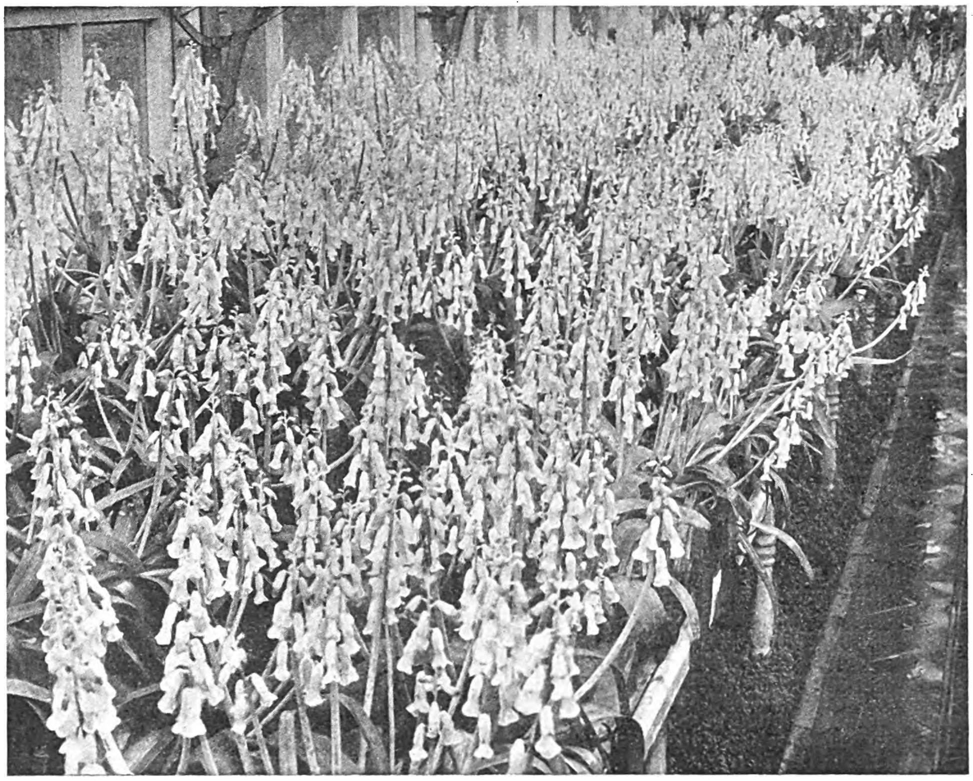


FIG. 113.—LACHENALIA NELSONII AT WOBURN PLACE, ADDLESTONE.

TREES AND SHRUBS.

ORNAMENTAL MAPLES.

The many varieties of Acer palmatum are amongst the most beautiful of hardy trees with ornamental foliage, which in many of the forms is finely serrated.

Borders and large beds planted with Japanese Maples add rich colour to the garden, especially in early summer, when the leaf-colouring is most pronounced. The type is a compact tree with five-pointed leaves, of a bright, lively green, and numerous small branches which are almost hidden by the wealth of foliage.

Acer palmatum sanguineum and A. p. atropurpureum have elegant, exceedingly neat foliage, dazzling in colour, especially, lit up by the sun. The variety sanguineum may be distinguished from atropurpureum by the red bark of its young wood and the green under-surface of its leaves.

Acer palmatum roseo-marginatum has prettily marked foliage; the leaves are divided into leaflets, three to five in number, light green in colour, marked along the margin with a narrow, irregular band of rose-colour on white.

A. palmatum ampelopsifolium is another elegant form, with gracefully-arched branches and leaves resembling those of the Virginian Creeper, but smaller and more delicate in texture. Their colour is deep crimson, the tone becoming darker as the season advances; it is a very charming Maple. A. palmatum dissectum has foliage distinctly Fern-like in appearance. The young growths are long, slender and pendulous, and like the leaves, coloured deep crimson, the young foliage being especially handsome. A. palmatum ornatum is similar to the above, but of a brighter hue; the foliage is more finely-divided than in the variety dissectum. A. palmatum septemlobem elegans has seven-lobed leaves, of a reddish hue, turning in autumn a rich amber-yellow and crimson. The leaves are deeply serrated when young, and margined with delicate rose. In A. japonicum aureum the leaves are a soft pale yellow with rose-coloured foot-stalks and nerves; they are palmately divided into ten or twelve lobes, fan-shaped in outline and glabrous on the upper surface.

A. japonicum laciniatum has the foliage cut into deep lobes, giving the leaf a Fern-like appearance. The leaves turn a rich claret-purple in autumn, relieved at the tips by yellow.

Acer nikoënse is a beautiful and remarkable Maple, noteworthy for its hairy, trifoliate leaves of brilliant tints in the autumn. When first developed the leaves are of a reddish-bronze hue, changing as they mature to a deep Pea-green above, and a distinctly glaucous hue beneath. In autumn the foliage assumes a most brilliant scarlet which is not surpassed in beauty by that of any other foliage tree.

Acer Davidii is a very fine species attractive in winter; the leaves grow eight inches long and are five inches wide. When first produced they are of a reddish-bronze tint, changing later to a deep, shining green, with strongly-marked veins of yellowish-green. The bark is striped with white, making it a valuable ornamental tree for winter effect. This species grows to a height of fifty feet in its natural habitat. A. laetum is a small-growing Acer with green foliage, marked bright rosy-pink. The plant is a compact grower and makes an elegant shrub for the back of the rockery. Acer Fargesii is dwarf and slow-growing and requires a sheltered situation. The leaves are leathery in texture, and when first produced are of a bright crimson colour. The keys, which are abundantly produced, are coloured bright crimson.

Acers grow best in a loamy soil mixed with plenty of leaf-mould and a few small lumps of charcoal. *G. L.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

THE NEWER CONIFERAE.

THE British Isles are singularly poor in indigenous species of Conifers. They number only three—the Scots Pine (Pinus sylvestris), the Yew (Taxus baccata) and the Juniper (Juniperus communis). Of these only the first can be considered a timber tree of economic importance. The Larch (Larix europaea) and the Norway Spruce (Picea excelsis) have been in this country so long—roughly three and four centuries respectively—and are such familiar objects of the landscape as to appear native, and are, no doubt, often assumed to be so by the uninformed. The Silver Fir of Central Europe (Abies pectinata), though not so commonly seen, is yet of old establishment, having been planted in this country since the beginning of the seventeenth century.

We may speak of the above, viz., the Scots Pine, European Larch, Norway Spruce and the Silver Fir, as constituting the older Coniferae, from the foresters' point of view; and compare them with the Corsican Pine (Pinus Laricio), Japanese Larch (Larix leptolepis), Sitka Spruce (Picea sitchensis), the Giant Silver Fir of Pacific North America (Abies grandis), and in addition the Douglas Fir (Pseudotsuga Douglasii), as constituting the newer Coniferae, since none of these was introduced before the nineteenth century, and all may yet be said in varying degrees to be on their trial as timber trees for this country.

Since the war, afforestation by the appointment of the Commission, has at last been taken up in earnest, and extensive areas are being planted, chiefly with Conifers. Criticism of a two-fold character has been forthcoming—the neglect of the hardwoods and over-confidence in the newer Coniferae. The former is unavoidable as the land that can be acquired is for the most part only suitable for Conifers. I trust, however, that in the Crown forests, and wherever conditions are favourable, efforts will be made to increase our broad-leaved trees, especially Oaks and Ashes which through the war suffered a serious depletion. Regarding the second criticism, time alone will show its justification. Webster, two years ago, in an article on the Government Forestry Policy (*Gard. Chron.*, LXXVII, p. 186, 1925) took up a conservative attitude, disparaging the new Coniferae and extolling the Scots Pine, Larch and Spruce.

My purpose in writing this article is not to attempt any expert discussion of the timber value and sylviculture of the newer Coniferae, matters upon which I can lay no claim as an authority, but rather to offer some remarks on the distinctive features, aesthetic effect, requirements as to soil and situation and incidentally, probable economic worth of these trees, as compared with the older Coniferae, having in mind the small property owner who may be desirous of planting up limited areas for the sake of shelter, amenity and ultimate usefulness. Unless he be very conservative he will naturally be drawn towards the newer Coniferae and if ignorant of their peculiarities, may easily put a good tree in a wrong place. Anything I have to state is gleaned largely from twenty years' personal observation in the north-west of England; consequently, my remarks apply especially to this part of the country, and also to a soil overlying the Triassic red sandstone.

PINES.

The large genus Pinus offers few species of economic importance for this country, and taken on the whole, our native tree is not easily surpassed. In decorative effect it is, in my opinion, far superior to the Corsican Pine, its only serious sylvicultural rival. The fine contrast of its blue-green foliage with its red bark is not equalled, I fancy, by any other species. It is easily raised and transplanted, is fairly accommodating as to soil, though, like most Pines, it is happiest on light soils and gives its best colouring under such conditions.

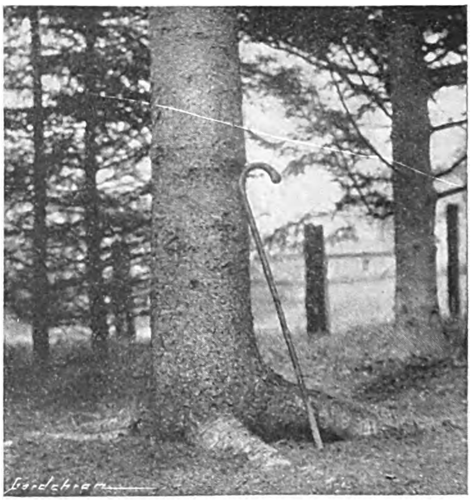


FIG. 114.—BOLE OF JAPANESE LARCH SHOWING PROTRUDING ROOTS.

The Corsican Pine is superior to it in rate of growth and straightness of bole, and provided its timber meets with favour, will furnish a greater bulk in a given time. The general impression is that it is later in forming heartwood than the Scots Pine, and is thus longer in maturing timber of good quality. It is by no means so easily raised and transplanted to permanent quarters. Care has to be exercised, otherwise deaths may be many. Late spring is the best time for moving it. The Scots Pine may be planted any time during the winter—is fact, from October to May, inclusive—with little chance of failure. One point in favour of the Corsican Pine is its immunity from injury by rabbits. They not only descriminate between it and the Scots Pine, but also between it and the Austrian Pine, which they greedily devour. This is remarkable considering that botanically the Corsican and Austrian Pines are reckoned to be varieties of the same species. To the forester and arboriculturist they are distinct. The Austrian, on account of its shorter annual growth and longer retention of its needles, makes a much denser tree. In the nursery the two Pines are readily distinguished by the character of the needles, twisted in the Corsican, and straight in the Austrian.

Aesthetically the Scots Pine does not mingle well with any of the forms of Pinus Laricio. If the Scots and the Corsican Pines are to be inmates of the same plantation, then I should suggest planting the former on the outskirts, allowing the centre of the wood for the latter. On the other hand, the two varieties of P. Laricio do blend well, having needles of the same degree of coarseness. Here again, the one, the Austrian, should be planted on the outside, and the Corsican within. If intimately mixed, the latter will soon outgrow and eventually suppress the former. The Austrian Pine affords much better shelter and ampler verdure, and for these additional reasons should be the marginal tree. These two Pines are eminently suitable for forming a protective coast belt. They withstand the sea blast much better than the Scots Pine. The Austrian Pine should be planted seawards, then the Corsican Pine, reserving wholly or partly the landside for the more beautiful and attractive Scots Pine. For calcareous soils Pinus Laricio must be selected, as P. sylvestris does not take kindly to lime; also the former is more suitable for clays. In fact, P. Laricio, in its various forms is a wonderfully accommodating Pine, and thus, in spite of its coarseness and sombre appearance, is to be welcomed in positions where the Scots Pine will not flourish.

LARCH.

The Japanese Larch, from every point of view, is proving itself one of the best Coniferous introductions of the last century. Just as arboriculturists were lifting up their hands in despair over the proneness to canker (Dasyscypha calycina) of the European Larch, the Japanese species came along, as it were, to the rescue. So far, it has proved itself well nigh immune. In my experience here, it is absolutely so, up to date. The two are growing in intimate association. The European Larch is badly blistered, but there is not a suspicion of disease on the Japanese Larch, even on suppressed trees barely maintaining life. This Larch has not yet been long enough with us to pronounce on the value of its mature timber as compared with that of the European type. The general opinion is that it will prove inferior. In its youth it is a more rapid grower and is capable of producing pit props, useful poles and fencing material in the short space of ten or twelve years, but one has doubts of the durability and strength of this quickly-grown Coniferous timber. The best tree of a grove planted by the writer twenty years ago on alluvial gravel by a stream, has at present a girth of thirty-nine inches at four feet from the base, an approximate height of forty-eight feet, and probably contains ten or more cubic feet of timber. A companion tree recently felled measured three inches less in girth, contained eight-and-a-half cubic feet, and was forty-five feet high. The original leader had suffered a mishap two years ago, and this had probably dwarfed the tree a couple of feet. This tree is fairly well hearted, the heart-wood extending outwards for about fourteen annual rings.

The Japanese Larch is readily distinguished from the European by the rich colouring of its bark. It is this feature that makes it so distinctive in winter. A slope given up to Larch should, for aesthetic effect, be planted with the Japanese kind on the lower and the European species on the upper parts, with no sharp line between the two; then in winter there will be a pleasing colour gradation upwards, from warm brick-red to pale yellow-brown. A breadth of young Japanese Larch above a covering of snow is an appealing sight.

The leaves of the Japanese Larch are broader and somewhat glaucous, approaching blue-green in colour, and its branches are stouter and more widely flung than those of the ordinary Larch. As a specimen tree it thus requires more room; but sylviculturally it may be advisable to plant it more closely than the common Larch in order to kill off the laterals early for clean timber, especially as it is not so intolerant of shade. The tree, when of some age, and when growing under forestry conditions, is not so readily distinguished from the European Larch, but an expert has little difficulty in "picking it out" from the appearance of its trunk. The bark is redder and more flaky as a rule. It is also more inclined to protrude its roots from the base of the bole (see Fig. 114).

It is less wind-resisting than the ordinary Larch, and more trees are apt to become flat-topped. It needs more moisture and so is not suitable for planting in soils which become at all arid for a time in summer. Plant it, therefore, where it has shelter, abundance of moisture, and at the same time good drainage, and avoid, if possible, frost holes. Its new growths are more sensitive to spring frosts than those of the European Larch, or it may be that it is rather earlier in coming into leaf. In a frosty hollow it is apt to get much crippled in its youth, though eventually it will fight its way up, but probably with a crooked stem. From my observations, I should say it sheds its needles a little earlier in the autumn. It is quite as effective, if not more so, at this season of the year than the common Larch.

To sum up, it is a delightful tree for the arboriculturist, and sylviculturally is easily managed, though the forester may have present at the back of his mind the thought that it may ultimately not be so acceptable to the timber merchant or the estate agent. Presumably, it is never likely to reach the stature of our common Larch. Have any systematic observations been carried out to see whether Larix europaea from native seed is less liable to canker than that raised from Continental seed? A few Larches raised here from locally collected seed suggest that they make healthier trees.

SPRUCE.

The Sitka Spruce has come to stay, for four good reasons: It is a quicker grower, stands the wind much better, thrives on wetter ground, and produces timber of higher quality than the common (Norway) Spruce. But there is room for both, and especially æsthetically. The ordinary Spruce is still assured of its wonted place at Christmas. The Sitka is no rival here. It is too prickly and too meagrely furnished with branches. There is no other Spruce, or Conifer, in fact, so suitable as a Christmas Tree as Picea excelsa. The Sitka Spruce also, one imagines, would be a poor substitute in game coverts. In fact, as an amenity tree the common Spruce is not easily superseded by any other species of Picea; but variety is desired, and the Sitka affords this through not only being different in habit but also in colour—glaucous green foliage in contrast to the pure green of Picea excelsa. The prickly character of its needles renders it unattractive to rabbits—an advantage.

To be a complete success the Sitka Spruce must have an abundance of moisture available in the soil. On dry ground it is apt to shed its needles too early and so to wear a lean look in winter. It is almost intolerant of shade, and thus is more easily suppressed than the ordinary Spruce. Trees weakened in this way recover rapidly on the removal of the shade. It is especially valuable for planting in boggy land where the Norway Spruce is incapable of flourishing.

The young shoots of the Sitka Spruce are very sensitive to frost, and as it is early in putting forth its new growth it is apt, in its youth, to suffer badly from late spring frosts. The new leader may be entirely destroyed in this way, and though a fresh one will usually be produced, an ugly kink results in the main stem which spoils the timber at the pole stage. Ultimately, this will disappear as maturity approaches. Since swampy places are often low-lying, constituting frost holes, there is this sensitiveness to contend with in planting Sitka in these situations. It has, however, such vigour that it is rarely killed outright by spring frosts, unless it happens to meet with an extra stiff late frost just after being planted. Its annual growths are often three to four feet in length, so that, with luck, it soon rises above the frost zone. The young shoots of the ordinary Spruce are also sensitive, but it is later in bursting its buds, and only rarely, therefore, does the leader suffer. Is it past the wit of man to produce late-shooting strains of both species? Individual plants vary inherently in this respect. I have noticed this markedly in the case of Picea excelsa. In fact, trouble has been taken to select slow-moving plants in the nursery for frosty situations.

A valuable feature of the Sitka Spruce is its resistance to wind; it may, therefore, be planted in exposed situations, where the ordinary Spruce would be liable, owing to its shallow root system to be uprooted in a gale. *J. Parkin.*

(*To be concluded.*)

NOTES FROM KEW.

INCLUDED in the large Prunus family, which at Kew includes Amygdalus, Cerasus and Laurocerasus, is a considerable number of useful, early, spring-flowering trees and shrubs. P. subhirtella var. autumnalis (syn. Miqueliana) has been producing a succession of blossoms during mild spells of weather for some five months, and is still very attractive. The Rosebud Cherry, so long cultivated in gardens as Prunus pendula, is placed by Wilson in his Monograph of *The Cherries of Japan*, following Tanaka, as a variety of P. subhirtella, this nomenclature being followed in the new *Hand List of Trees and Shrubs*. Flowering early, it is often damaged by frosts, but this year, favoured by mild weather, the gracefully weeping branches are festooned with the small, pale-rose blossoms. A tree at the foot of the hill near King William's Temple, some ten feet high, with spreading and pendant branches nearly to the ground, is particularly attractive.

P. Davidiana, which sometimes opens its first blossoms by mid-January, was a month late in starting this year. The flowers of some at least of the trees raised from seeds sent home by recent collectors from China are not so large and attractive as the original stock introduced by the Abbé David to Paris in 1865. He stated at the time that "the tree made a beautiful and conspicuous feature in the vicinity of Pekin." This suggests that the Abbé David's seeds were from cultivated trees. There are forms with pure white and also rosy blossoms.

Several varieties of the Almond, P. Amygdalus (syn. Amygdalus communis), are a conspicuous feature in various parts of the gardens, particularly in the neighbourhood of the Temperate House. The first to flower, a fortnight or three weeks in advance of the type, is the variety persicoides (also grown as var. praecox). The flowers are a shade or two lighter than those of the type. Against a background of evergreen trees, masses of the rich rosy blossoms of the type, especially on first opening, are most attractive. The variety alba has large, pure white blossoms. A variety known as the Richmond Park Almond, because the stock came from a tree growing in Richmond Park, has large white blossoms, two inches across, not perhaps quite so pure white as the variety alba, but the individual flowers are larger. The variety macrocarpa is a vigorous tree with soft rosy blossoms, so named because of its large Almond fruits.

Numbers of trees of the Cherry Plum or Myrobalan, P. cerasifera, are covered with pure white blossoms. In gardens to-day the variety Pissardii is very extensively planted and is much more atractive than the type, having red foliage and tinted blossoms. A number of varieties or hybrids have found their way to this country from the continent. One of the first, named Blireiana, has purple foliage and semi-double, rose-pink blossoms. Moseri is a rather deeper shade of rose-pink, also semi-double. Both are flowering very freely at

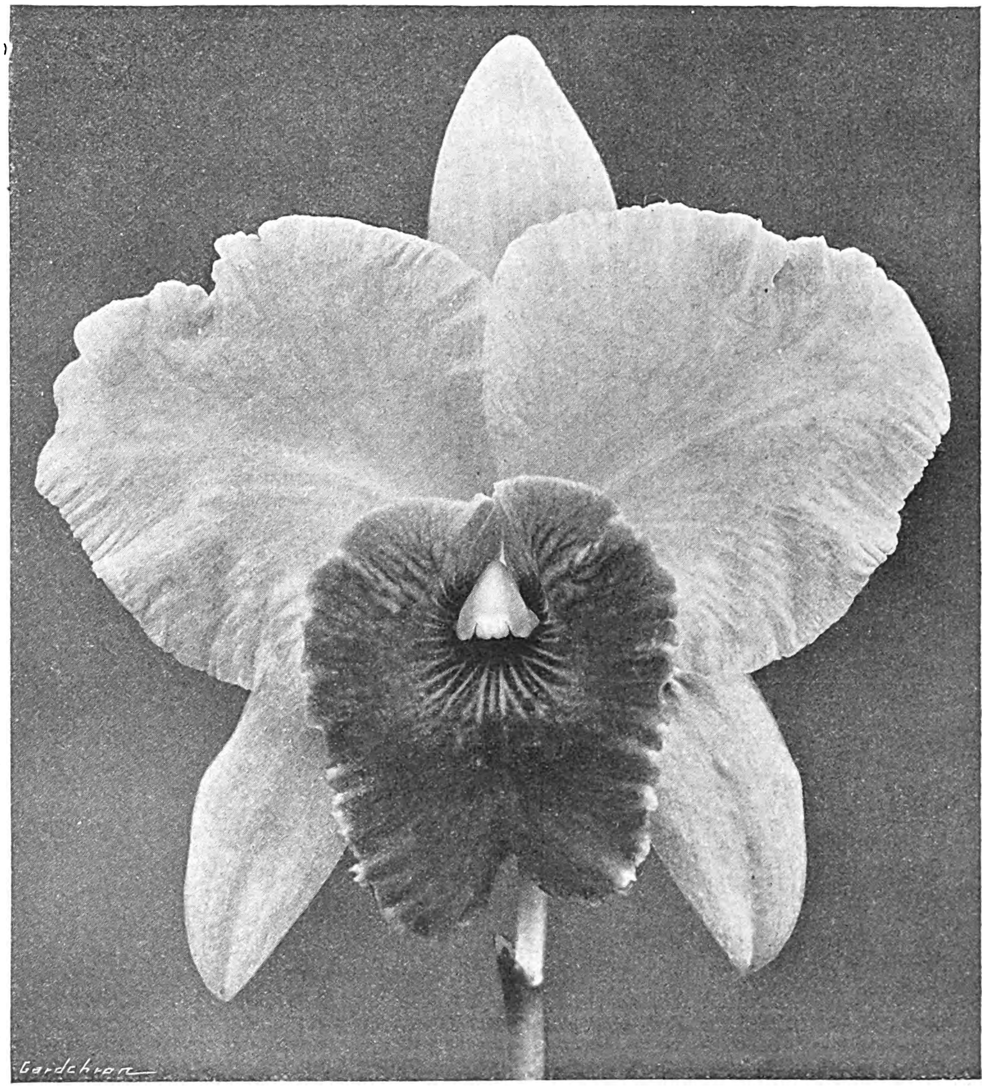


FIG. 115.—SOPHRO-LAELIO-CATTLEYA MIKADO.

R.H.S. First-Class Certificate, March 22. Flowers apricot, pink and ruby. Shown by Baron Schröder, Dell Park, Englefield Green. (see p. 219).

Kew this year. Two other varieties, more recent additions to the Kew collection, are variety nigra with very dark red-purple foliage, and Hazledene variety. In general appearance large trees of P. divaricata are very similar to the Myrobalan, but the fruits are yellow, those of P. cerasifera being plum-colour.

Prunus tomentosa is a common Chinese shrub, four feet to six feet, occasionally more, in height, and as much, or more, in diameter. The flowers are small, not more than three-quarters-of-an-inch across, but very freely produced in March, white or with a slight tinge of pink.

The Japanese Plum, Prunus salicina, perhaps better known in British gardens and nurseries as P. triflora, is a very showy tree with masses of white blossoms. Though first introduced from Japan, where it is extensively cultivated, the tree is only known in a wild state in China, several trees raised from seeds sent home by Mr. E. H. Wilson being at the present time covered with blossoms.

The semi-double-flowered varieties of P. Mume, the Japanese Apricot, blossom about the same time as the Almond. The variety flore roseo pleno has rich rosy-pink blossoms and flore albo pleno, pure white, semi-double flowers. Rather more liable to damage by wind and white frosts than many Prunus, P. Mume should have a sheltered position.

The newer Chinese Cherries, P. pilosiuscula and vars. barbata and media, P. Conradinae, P. incisa, P. consociiflora and P. yedoensis are all represented by attractive flowering specimens. *A. O.*

THE BLUE PRIMROSE.

These notes have been prompted by reading a recent article on the "Genetics of the Wisley Blue Primrose," by B. Buxton, F.L.S. (*Journal* of R.H.S., vol. LI, p. 305).

The author states that since the natural colours of the Primrose are yellow or red, the blues now cultivated are a recent mutation, probably due to the germ cells becoming damaged in some way, owing to over stimulation in cultivation and in consequence, have lost the power of excluding the K/ions or other alkaline ions of the sap and the blue cells admitting them.

Is this so, or is the origin of the blue Primrose to be sought in hybridisation ?

So much has been done in this field since the appearance of the first blue Primroses that perhaps other readers may express an opinion as to their origin.

What is known of the first blue Primroses ?

The late Mr. G. F. Wilson of Wisley exhibited in 1878 (Scott-Wilson) a Primrose of Tyrean purple, or purple with violet shades, and it was not until April 8, 1890, that he was able to show a blue Primrose, a seedling from Scott-Wilson (*Journal* R.H.S., vol. XII., pp. 43 and 46). Mr. Wilson left no records of the origin of Scott-Wilson.

The late Mr. Richard Dean of Ealing was another of the first raisers, and we do not know his method.

The late Max Leichtlin, of Baden-Baden stated that he used the old blue Polyanthus.

After the production of the first blue or purplish-blue Primroses, the late Mr. Anderson-Henry wrote, that in his garden at Woodend, Madderty, Perthshire, blue Primroses grew freely and were also common in the gardens around. Inquiries were made three years ago whether blue Primroses were still found there ; the only coloured ones found were sent here and were the usual red and lilac forms of the common Primrose. What had caused the blue Primroses to disappear ? Mr. McAra, a former nurseryman in Crieff, probably supplied the information. He said that, forty years ago, the old blue Polyanthus grew plentifully in his nursery and in many gardens in the Strathearn district. The original plants were brought home by Thomas Graham, of Balgowan (created Lord Lynedoch for services in the Peninsular war), collected during his travels.

Would the old blue Polyanthus in that district not account for the blue Primroses as in Leichtlin's case ?

The blue Polyanthus has long since died out in that district ; Mr. T. Hay, Hyde Park, London, informed me that he remembers it well.

What was the old blue Polyanthus ? Was it Primula elatior coerulea as mentioned in *The Garden*, May 3, 1879, p. 365, or was it Primula amoena (Bieb.) ?

"The latter was introduced into Britain in 1831. It has a scape three inches to four inches high and an umbel of violet-blue flowers. It flowered in 1833 in the garden of the late Dr. Neill at Canon Mills, Edinburgh (of which a figure appeared in *Bot. Mag.* of that year, t. 3252) and produced an umbel with eighteen flowers. It is found in the Caucasus and Armenia" (*The Primulas of Europe*, by John McWatt, M.B., etc.), see also R.H.S. *Journal*, vol. XXXIX, p. 171, and Engler's *Pflanzenreich*, vol. XXII, pp. 48 and 56.

Professor Bayley Balfour gives P. Sibthorpii or P. acaulis var. rubra as a parent of all our forms of pink, red, purple and blue Primroses (R.H.S. *Journal*, vol. XXXIX, p. 171).

"P. Sibthorpii is found in Greece and northern Persia, and is a parent of all our coloured Primroses. The colours of the flowers range from purple to rose and reddish-pink. It flowers in February." (Dr. McWatt in *Primulas of Europe.*)

Coloured Primroses were recorded so early as 1629 (Parkinson), and yet through all the following years no mention is made of blue until a comparatively recent date. Was not the introduction of a new plant necessary, and where more likely to be found than in the gardens of keen horticulturists who raised the first blue Primroses ?

A cottager's garden in Surrey has been under observation for several years. In it, yellow, pink, red and lilac Primroses seed freely among the bushes, but no blue ever appears. On the other hand, when blues are once cultivated near other Primroses or Polyanthuses, sooner or later, blue natural seedlings will appear amongst these. This year there appeared here among my seedlings a good blue Jack-in-the-Green.

Were the original parents of the blue Primrose the old blue Polyanthus (P. amoena) and P. Sibthorpii ? One or both parents must have been of early flowering habit, as blue Primroses are very early, often flowering all the winter.

A cross was made here between the Spetchley Polyanthus strain and a blue Primrose and it advanced the flowering time by several weeks. *Annabelle Hosking, Merton Park.*

THE VILMORIN ESTABLISHMENTS.

The firm of Vilmorin-Andrieux et Cie has six establishments.

The Central Offices, at Quai de la Mégisserie, in Paris, have occupied the same site ever since the business was created. The old building was taken down and rebuilt in 1855. In that connection a picturesque tale is told : It is said that the new building had just been erected when Baron Haussmann, Napoleon III's minister, first brought into operation his plan for the improvement of Paris. It happened that the new structure stood just on the required front, according to the Baron's plan, but did not possess the regulation height and style which had been uniformly set for all the houses on the embankment ; the building therefore would have been condemned had not some person of rank pleaded with the sovereign that M. Vilmorin be allowed to keep his store as it was ; the Emperor answered : "It is not a store, it is a scientific institute, let it stand." This little story goes to show the fame the Vilmorin's activities had earned already. The building of 1855 is now only about a third of the block of office premises as now standing. Over 300 members of the staff and a private printing shop attend to the office work connected with the business and its management, but except for a small amount of cash sales over the counter, the actual handling of seeds is done in the warehouse, at 115 rue de Reuilly.

The Reuilly Warehouse, which provides over ten acres of space under one roof, is operated by a staff of over 500 people ; it has its own power plant, with every mechanical contrivance for the drying, cleaning handling and packing of seeds, an automatic laundry and bag-cleaning machine, box factory, tool shop, etc., a fully-equipped seed-testing laboratory and trial grounds where are made the first tests of all seeds handled by the firm.

Verrières-Le-Buisson, about ten miles from Paris, on the south-western side, is the oldest of the Vilmorin's out-of-town establishments. It has been the family seat ever since M. Philippe Andre de Vilmorin bought it in 1815. The botanical collection which he then started has been since enlarged to include over 10,000 different types or species of plants ; some trees in the grounds are unique specimens, dating back from the days of their first introduction to Europe.

This establishment is at present the largest plant-breeding station in the world. Over 50,000 different plots are cultivated every year and the records kept. Three laboratories, one of chemistry, one of botany, and one of plant diseases, insure scientific investigation.

A visitor to Verrières should see the library of over 7,000 volumes, the museum, and the rockery for alpine plants which the late Mr. Philippe de Vilmorin built on the lines of the Rock Garden at Kew, and which, although much smaller than the latter, is the largest to be seen in the neighbourhood of Paris.

Not far from Verrières, close to the railway, a large warehouse was built in 1890 at Massy-Palaiseau, to supplement the one at Reuilly. On the 200 acres of land around it, the same kind of plant-breeding work as at Verrières is carried on, while similar work is carried on on a large scale for agricultural seeds at the farm called Les Granges, picturesquely situated on a hill, in the vicinity.

Empel, is the name of another of the Vilmorin's places, on the Riviera, at Antibes, started long ago by M. Henry L. de Vilmorin, for the cultivation of plants that grow and seed best in a mild and sunny climate such as Chinese Primulas, Cyclamens, Asparagus, flowering Cannas, etc. There about fifty men are engaged in work that is carried on out on same scientific principles as at the other establishments.

Le Puy, another small establishment, is operated by the firm in the forest region of Haute Loire for the purpose of collecting and drying seeds of certain forest trees, chiefly of the Scotch Fir (Pinus sylvestris).

Before bringing to a close this brief account of the Vilmorin establishments, a few figures may be given to describe the growth of the business : In the year 1846, 2,410 letters were received ; 350,000 in 1907, and 600,000 in 1925. The entire staff consisted of 42 men in 1855, and about 600 in 1907 ; it is now 1,650, and is increasing every year. *A. M.*

NOTICE OF BOOKS.

Citrus Fruits.

Under the general term "Citrus Fruits," are included not only Oranges and Lemons, which are known to everyone, but also the less familiar Grape Fruit or Pomelo, the Shaddocks, Kumquats and Limes. Of each of these fruits there are a number of varieties, as will be recalled by those readers who had the opportunity of seeing the fine collection which Commandatore Hanbury sent from the gardens at La Mortola to the meeting of the Royal Horticultural Society on January 25, 1927.

Originally from Cochin China and countries adjacent, the different species of Citrus are now widely cultivated, and have become the subject of important industries in many countries. Formerly, commercial supplies of Oranges and Lemons were derived chiefly from Mediterranean countries, Spain, Italy and Jaffa being important producers, but with the growth of population and the development of agriculture in new countries, and the consequent increase in the demand for these fruits, their cultivation has been extended to new geographical areas. The more important of the new countries concerned are Australia and South Africa, where large areas are now under Citrus fruits, and the southern United States, especially California and Florida, where the Citrus fruit industry has become of great importance.

An account of the cultivation of Citrus fruits in the United States forms the subject of an important book* that has recently issued from the press. The author, Mr. Harold Hume, claims to have had, for more than a quarter-of-a-century, contact with every phase of Citrus culture, and he has embodied his experience in this book, which is certainly the most comprehensive work on the subject. In the United States, Citrus culture has now become a highly specialised industry, and holdings of hundreds or thousands of acres under this crop are common. Every phase of the industry has been standardised in recent years, and the descriptions of the methods practised should prove interesting and profitable reading to the commercial fruit-grower in this country.

Speaking of the practice in vogue twenty years ago, the author says: "Gone are the numerous varieties that made up the planting lists of that period; in their stead a brief list of fruits remain, sufficient to cover the harvest season. Gone are the individually-operated and crudely-equipped packing houses. They have been replaced by community packing-plants in which fruits are handled in large quantities. This has made for greater uniformity in the product marketed and better returns to the grower. Gone are most of the old-time sprays—wonderful compounds that often did more harm to the trees than to insect life. They have been replaced by more efficient mixtures."

In the opening chapters is an account of the botany of Citrus fruits, which should prove of general interest, each species and variety being described in detail, and figured. The classification adopted is that of W. T. Swingle of the U.S. Department of Agriculture at Washington. Under this scheme of classification the genus Citrus is separated into three genera, Poncirus, Fortunella and Citrus. The genus Poncirus, has been re-established as the name of the trifoliate Orange, commonly known as Citrus trifoliata, which is largely employed as a stock for Oranges, as it imparts to the trees hardiness and resistance to heat and cold. The genus Fortunella has been established for the Kumquats, which were first introduced to Europe by Robert Fortune, the botanical explorer, in 1846. The remaining Citrus fruits of commerce are included in the genus Citrus, but several changes in the nomenclature of the species have been made. Following these descriptions are chapters dealing with the breeding of new varieties, and with every detail connected with the propagation, planting, cultivation and maintenance of Citrus groves. Amongst these operations irrigation and the fertilisation of the soil are important, the former being the more important in California, whilst the latter constitutes one of the first questions in Florida. The author is to the point in dealing with soil fertilisation; he states (p. 288), "the grower who neglects his trees should undertake some other line of work," and on p. 289, "Chemical analyses of Citrus soils are frequently regarded by growers as giving a definite indication of the fertilisers to be used. As a matter of fact, while such analyses have some value when applied to certain soils, they should not be regarded as an absolute guide. The chemist cannot give dependable information covering the availability of the plant foods in the soil, or the forms in which they occur." On the selection of suitable fertilisers depends the quality of the fruit; "it may be thin-skinned, heavy and juicy through the use of proper materials, or on the other hand, it may be thick-skinned, full of rag, insipid and lacking in character, owing to the use of poorly balanced fertilisers."

Protection from frosts is another problem that calls for a good deal of care and attention. The term frosts in the United States corresponds to our "white" frosts, whilst freezes appear to be the equivalent of our "black" frosts. Whilst acid fruits, such as Limes and Grape Fruits, come to perfection in frostless areas, Oranges are said to reach their highest quality in countries where frosts occur, consequently there is always a risk of injury to the trees from this cause, and stoves and open fires of wood are employed in the groves to minimise the damage.

It is in the preparation of the fruit for market that great developments have been made during recent years, and every phase in the handling and packing of the fruit is carefully regulated. Machinery is largely employed in the packing houses for grading, washing and drying the fruits before they are packed into standardised cases. In view of the campaign against the marketing of green fruits, artificial colouring is now carried out. This is effected by exposing the fruits in special houses to the action of the gas given off by kerosene stoves or the exhaust gases from gasolene engines. "Good fruit," states the author, "stimulates demand. If the quality is good and the appearance fine, more can be sold than if it is of inferior stock."

The marketing is chiefly in the hands of co-operative marketing organisations, of which the most important are the California Fruit Growers' Exchange and the Florida Citrus Exchange. These organisations not only distribute the fruit, but collect information on markets, advertise and secure a wide distribution and a large consumption.

The book concludes with a description of insect and fungous pests of Citrus fruits, and gives methods of control and formulae of insecticides and fungicides.

It will be seen that the subject is exhaustively treated, and a word must be said for the illustrations, which are not only numerous, but carefully selected. "A single picture," writes the author, "may tell more than a page, or indeed, several pages, of print." The book, although written from the American standpoint, can be recommended to all interested in the cultivation of Citrus fruits, for it gives sound advice in plain language on all matters concerning the cultivation and marketing of this important group of commercial fruits.

---

* *The Cultivation of Citrus Fruits*, by Harold Hume, pp. xxi + 561, illus. London: Macmillan and Co., Ltd. 1926. Price 21/- net.

LILIES AT OTTAWA IN 1926.

During the summer of 1926 the seedling Lilies made a fine show in the garden at the Experimental Farm. L. regale is the most popular, and it grows so well that it is an ideal plant for the hardy border. Seedlings of L. Willmottiae (open fertilized) and of L. Davidii × L. Willmottiae attracted much attention by their gorgeous colour and floriferousness. Some plants had over forty blooms. For general garden effect there seemed to be very little difference between the Willmottiae seedlings and the hybrids.

In 1925 one seedling amongst those of L. Willmottiae was labelled as distinct, and this bulb and its bulblets were marked when the bulbs were transplanted from the frame into the garden. It was a pleasant surprise to find that this special plant was something quite different to its known parent, and, indeed, to any other Lily of which the writer has any knowledge. It bloomed a little earlier than the other seedlings. It differs from Willmottiae in the shape of the flowers, which are open and upright instead of being reflexed and nodding. The plants were about three feet tall instead of five-and-a-half feet, which is the average of the other seedlings. The colour of the flowers is not quite so vivid as in L. Willmottiae, and no seed-pods were formed. The leaves are long, narrow and dark green, clustered on the stem as in L. Willmottiae. The flowering season is later than that of most upright flowering Lilies; the narrow leaves are also unusual. It seems to be hardy and a good propagator, so that it may prove to be worthy of a place in the gardens of the future.

The L. tigrinum seedlings reported in *The Gardeners' Chronicle* of February 20, 1925, bloomed well in 1926. L. tigrinum × L. Willmottiae was very like the female parent, except that there was no down on any part of it. The stem grew to five feet, and was glossy green with a brown tinge. The lower leaves were long and narrow, while the upper ones were shorter and broader. The pedicles were three inches long and about an inch apart on the stem. There were about twenty blooms, which were not quite so large as those of the largest type of L. tigrinum. In shape they were much the same, but the colour—flame-scarlet in *Ridgeway's Colour Chart*—was more vivid, and the spots were very dark.

Of the L. tigrinum × L. Maximowiczii cross, there were several seedlings and three distinct types, although the seeds all came out of one seed-pod. The first and most attractive grew six feet tall and was thickly covered with down in all parts. The lower leaves were long and narrow, while the upper ones were broader. It was the length of the pedicels, six inches, which made this plant so noticeable. Many of them were branched and there were more than twenty-five blooms. These were smaller than in L. tigrinum, flame-scarlet (Ridgeway) in colour with small dark spots. The petals were strongly reflexed and all faced downwards. Five weeks elapsed between the opening of the first flower and the fading of the last one.

The second type, in 1925, was described as growing two feet high, with pale, unhealthy-looking flowers. In 1926 the plant grew and showed flower buds, but developed disease and died completely. Although this plant was growing between the two, neither of these showed disease.

The third type grew to be two-and-one-half feet tall, and showed very little down. The leaves were much the same as in the first, except that they were smaller. The flowers were clustered at the top of the stem, the pedicels were short so that the blooms had no room to expand. The colour was not quite so vivid as in the others; grenadine (Ridgeway) seemed to be the nearest to it, but anyone who has tried, knows how difficult it is to describe the colour of a flower.

The L. testaceum seedlings were transplanted in the autumn of 1925, and did not bloom in 1926. L. testaceum does not thrive in the garden at Ottawa, so it is not surprising that its seedlings sulk also.

The seedlings of L. Hansonii crossed with Martagon hybrids are growing very slowly, but, again, our conditions do not suit Martagons, so, whether we shall be able to grow these hybrids to blooming size seems doubtful. L. Sargentiae was transplanted in the open in light, sandy soil in the autumn of 1925. The position seemed to suit it and it grew into a strong plant and flowered well and set seed. L. sulphureum and L. sulphurgale were treated the same way, but they did not flower although they grew. *Isabella Preston, Central Experimental Farm, Ottawa, Canada.*

LILIES ON THE COTSWOLDS.

The Cotswold district is invariably subjected to a long winter; severe frosts are not uncommon, fog is prevalent, the atmosphere humid, late spring frosts and cold east and north-east winds frequent, hence it will be readily understood that the conditions are not favourable to the growth of many kinds of Lilies. The soil, in the Cirencester district, is calcareous loam over clay, so that sites must be prepared for the reception of several species.

It is ever interesting and profitable to review one's successes and one's failures, and possibly the latter possess the greater educational value; a retrospect extending to twenty years tells of some successes with Lilies and a number of failures, and if this experience has served no other purpose, it has shown what species are suited to a cold and damp district and tabooed a whole list of interesting and beautiful plants.

L. umbellatum and its varieties have occupied for many years permanent positions in the hardy flower borders, and have fully maintained their vigour; the bulbs have been periodically lifted and replanted, and with the general collection of perennial border plants, have received annual surface dressings of rotted manure or of leaf-mould. These remarks apply also to L. pyrenaicum, L. Martagon, L. chalcedonicum and L. croceum, all of which have grown with the utmost vigour and have displayed satisfying floriferousness. I made reference in this journal, some few weeks ago, to the remarkable growth displayed by L. Martagon dalmaticum; some bulbs had been growing for several seasons in one position and had been making good average growth, but, following lifting and replanting, produced stems for the two following seasons from six feet to eight feet high, and one isolated specimen attained to even greater height. Subsequently these plants resumed an annual normal growth of three feet to five feet, but whether frequent removals would have caused a recurrence of luxuriant proportions is an open question.

L. M. album was quite satisfactory for a time, but proved a comparatively short-lived plant. L. Henryi, planted in a border at the base of a west wall, in company with Paeonies, made, for a season or two, extraordinary growth, but subsequently dwindled to quite ordinary proportions; in other positions this species did quite well, and may be regarded as a satisfactory Lily for the soil of this district. L. candidum (the Madonna Lily) is a feature of Gloucestershire cottage gardens and in many old-world villages are to be found masses of extraordinary duration; newly-planted bulbs are subject to disease, and where this lovely plant will establish itself, it should remain to work out its own salvation.

L. Hansonii is extremely satisfactory, flowering with the utmost regularity and efficiency in the hardy flower border; the addition of peat is often advised for this Lily, but I do not find it necessary. With this species, as with many others, it is wise to plant it where other growth will shelter it from late frosts and keen winds, which undoubtedly cause unsatisfactory growth of these Lilies.

L. tigrinum in variety thrives excellently and is certainly one of the most useful members of the genus.

L. pardalinum is quite good in the existing soil, in sun or half-shade, but is even better in a bed of peat or woodland mould; it is both persistent and floriferous. L. testaceum (syn. excelsum), the Nankeen Lily, has proved a fine border plant over a number of years and, like L. candidum, resents disturbance. L. monadelphum Szovitzianum grew and flowered very satisfactorily for a number of years, planted in a deep and stiff loam; it evidently enjoyed full exposure to the sun. L. elegans, L. dauricum and L. pomponium are all good border plants, succeeding under normally good conditions, and with a minimum of attention. D. rubellum was for two or three seasons quite satisfactory, but the plants subsequently weakened, and eventually disappeared; L. Brownii behaved in similar manner and was never a success. L. auratum, L. speciosum and L. longiflorum do not succeed for very long; the two former species I have known to do quite well for one, possibly two seasons, and then to weaken rapidly. L. auratum does not succeed, although at Westonbirt, twelve miles distant, where there is a natural vein of peat, I believe there existed and perhaps still exist some grand specimens of this magnificent Lily.

L. sulphureum is undeniably a greenhouse Lily, as are most Indian species, but I have known it to grow and flower remarkably well in a sheltered garden for two or three seasons; it should certainly be tried in favoured localities.

Of the newer Lilies, L. regale and L. centifolium are, perhaps, pre-eminent; the former has already proved itself to be a magnificent garden plant, and the latter, a plant of noble proportions, bids fair to do so also; these two species are not in the least fastidious and thrive in a variety of soils and situations. The long, damp winters are possibly injurious to the resting bulbs of several species, and the late frosts and cold winds take their toll; possibly the finest Lily gardens are in the Heath and Pine districts, but Lilies are capricious, thriving in most unlikely circumstances and *vice versa*.

L. tenuifolium is fairly happy in stiff loam and full exposure, and L. giganteum will always thrive in thin woodland in a soil rich in humus. Other species have received a trial, but the Cotswold country is not, I am afraid, a good Lily country, as I think the late Mr. H. J. Elwes discovered at Colesborne. *Ralph E. Arnold.*

ROOT ROT OF RICHARDIA.

(RICHARDIA = CALLA AND ARUM).

A New Fungous Disease.

During February of this year, we received, through the medium of *The Gardeners' Chronicle*, specimens of Richardias (Callas) which proved on examination to be affected with a fungous disease new to this country. Microscopic examination of the plants showed the presence of a fungus with the characteristics just described and figured by Dr. C. J. Buisman in the February issue of the Dutch journal, *Tijdschrift over Plantenziekten.** In this article the disease symptoms are described, and a preliminary account is given of the fungus, of which full details are promised later. It will be of interest to give here the particulars of the disease, as they have been observed in Holland, especially as successful measures of control are stated to have been obtained. For several years past a root rot of Richardias had been observed in that country, the disease being frequently associated with the production of few and small flowers. This disease was noticed in several nurseries, where the rhizomes had been obtained from the same grower, in whose houses the stock was apparently heavily infected.

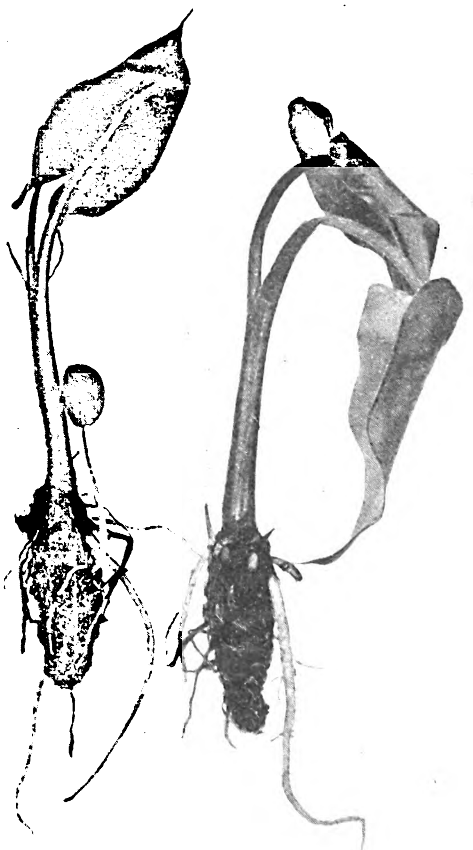


FIG. 116.—ROOT ROT OF RICHARDIA.

Two young plants with the majority of their roots rotted and brown. Even the few white and turgid roots shown are infected near their tips; 2/5 natural size.

The general course of the disease is as follows:—On the resumption of the growth of the plant after the resting period, the outermost of the new leaves which have been formed shows a yellow discoloration which gradually develops further, until the leaf-stalk becomes flaccid and the leaf falls over and withers. After a little time, the second leaf is affected similarly. In these circumstances further growth does not take place, but the plant does not die. New leaves are formed successively, which turn yellow and dry up; the plant remains small and produces only miserable flowers. It was found that diseased plants came out easily from the pot, the roots having for the greater part rotted away. The corm also is affected to some extent, and may even be partly rotted. The diseased roots, some of which were left behind in the soil, had a smooth, glassy appearance, and frequently showed a reddish discoloration. On a microscopical examination of the diseased roots, the first thing that struck the eye were great numbers of eelworms; these, however, were not apparently a parasitic species, and so could not be considered the cause of the disease. All kinds of "moulds," such as Thielavia basicola and different Phycomycetes, were also present. If an affected plant is taken and all its roots removed, and it is then planted up in fresh soil, the disease reappears after some time. It seems clear that the disease is brought in the corm, and later reaches the roots *via* the leaf mould. In one experiment, two lots of young corms of diseased plants were taken and, after the removal of their roots, were placed in a nutrient solution. One lot was dipped into diluted formalin (one part of commercial solution to twenty parts of water) and well brushed; in the case of the other lot, water only was used. The formalin-treated plants produced, after a time, healthy, thick roots, while the roots of the control plants developed the disease.

On rotted roots the fungus produced an abundance of sporangia in which zoospores were formed in the manner characteristic of Phytophthora. (The fungus is well illustrated in a drawing showing the sporangia produced on a root in water culture).

The fungus was isolated and observed in pure culture and found to be of the type of Blepharospora cambivora, which Petri has recently stated to be the cause of the Phytophthora-like disease of the Sweet Chestnut—the so-called Ink Disease of Chestnuts. It was considered to be a species new to science, and is named Phytophthora Richardiae. Inoculations, using pure cultures of the mycelium in agar, were made on healthy roots, which after some time became glassy and flaccid, and eventually rotten and slimy. In another experiment, large, healthy plants of Richardia were taken and their roots removed. Some were then inoculated with mycelium of the fungus grown in an Oat nutrient solution, while to the remaining plants only the Oat nutrient solution was applied. In about eight weeks the control plants had grown very considerably, while those inoculated with mycelium had made no growth, had produced few roots, and on these there was the typical appearance of the rot.

It is pointed out that Dr. Bewley had stated that the corms of Richardia will withstand immersion for four hours in diluted formalin (one part of commercial formalin to forty-nine parts of water). The following recommendation for the control of the root rot of Richardia is given: Clean the corms by washing in water, then immerse them in formalin diluted one to forty-nine, for one hour. It is suggested, as being advisable, that all the rotted portions of the corm should be cut out. Infected soil, in which diseased plants have been grown, must not be used again, and if the same pots are used, they should first be sterilised.

The specimens of Richardia we received came from Berkshire, and were reported by the grower to be making very poor growth. On examination of the plants it was seen that one of the two leaves showed a tendency to yellow coloration, and that although the rhizome ("corm") was firm and apparently healthy, there was a paucity of roots.

The plants were young and the largest measured twenty-two inches from the tip of the leaf to the end of the roots. A few of the latter, where healthy, had attained a length of nine inches. When all the adhering soil had been carefully washed away, the most noticeable feature indicating a diseased condition was the presence of the remains of numerous roots so completely rotted that only the epidermis existed in the form of a flat, collapsed tube, brown in colour and, owing to the wet conditions, flaccid and closely applied to the side of the corm. It appeared that the rotting had taken place suddenly, and in some cases at an advanced stage of development of the roots, because here and there the collapsed epidermis was still provided with several lateral roots which were also in a similar state of collapse. On one or two of the rhizomes, all the roots were reduced to this condition, and since they adhered so closely to the rhizome, it might well have been thought, on casual inspection, that no roots had ever grown out. On the majority, however, from one to a dozen white and apparently healthy roots occurred in company with many more in a brown, collapsed condition on the same rhizome. (See Figs. 116 and 117.)

---

* Buisman, C. J. Een wortelziekte van Calla, veroorzaakt door een Phytophthora-soort. *Tijdschr. over Plantenziekten.* XXXIII. 17-22, 1927.

Close inspection of these white roots or their laterals showed that instead of being pure white and opaque as in the healthy condition, they were rather greyish-white and translucent in places, most commonly near the root tips, and here and there the translucent patches were extended and were assuming a brown coloration. Normal, healthy, white roots are turgid and strong and well able to support their own weight; it was noticed, however, that where the translucent water-soaked areas occurred, the roots showed a tendency to weakness. Even a short length of such a root could not be held at one end in the horizontal position without its free end bending downwards.

Seven corms which we were able through the courtesy of our correspondent to examine, showed no internal rot, and all were affected with the root disease described.

The following method of investigation was adopted in the present case in order to determine whether the disease might perhaps be the same as that already reported from Holland. Longitudinal sections of the root having shown the presence of long, unseptate and very broad hyphae, certain roots and their laterals, white and apparently healthy for the greater part of their length, but having slightly translucent areas, were cut from the corms and were laid in flat glass dishes with sufficient water nearly to cover them. The plants also were kept in the laboratory with their roots in water.

After twenty-four hours the roots were examined with the microscope, without removing them from the dishes, and it was discovered that a thick growth of sporangiophores and sporangia of a fungus, closely agreeing with that described from Holland, was present on several of the roots—particularly near the tips of several of the laterals. The sporangiophores growing from the root into the water, were mostly unbranched and bore a single terminal sporangium. Some were so short that the sporangium barely projected from the root outline, but the majority massed themselves into a fringe covering a distance of 0·5 to 0·7 mm. from the root. The longest unbranched sporangiophore measured 0·96 mm; they were 3-4μ thick (diam.), and there was a septum at the base of the mature sporangium. The latter commonly measured 52μ by 33μ; they were somewhat variable in shape, mostly oval and often with the upper third narrower than the lower two thirds. The tip was rounded and not apiculate. The contents of the sporangium were densely granular and of grey-green colour; segmentation later became visible and at maturity the apex of the sporangium opened and a number of zoospores, usually eight, escaped singly through the opening. The zoospores, when escaping from the sporangium, measured 16-18μ by 10-12μ (oval) or 14-16μ diam. (globular). Outside the sporangium there was a pause of several seconds before the zoospores moved away in the water.

This process takes place without the sporangium being shed, and a few hours after the release of zoospores, the tip of the sporangiophore (*i.e.*, at the position occupied by the septum) begins to grow out into the cavity of the now empty sporangium. The sporangiophore is sometimes swollen (6μ) below the empty sporangium, and the new growth is thinner, starting at 3μ and soon widening to 4μ; in some cases, however, the reverse condition is seen and the new growth immediately inside the empty sporangium is thicker than the original. Commonly the new growth swells out to form a fresh sporangium while it is still within the cavity of the one first formed, and in this position the new sporangium, with only its apex protruding from the original cavity, releases its zoospores. This proceeding may be repeated two or three times, and the succession of empty walls is seen persisting on the sporangiophore at short intervals (Fig. 118). Here and there the intervals are seen to be longer and the empty sporangia are well separated from each other. On rare occasions, perhaps only as a result of the plentiful supply of water, the outgrowing sporangiophore continues so far as 180μ beyond the original empty wall. It then forms a globular swelling (about 10μ diameter) from which two laterals arise, in addition to a continuation of growth of the main hypha. Each of the three then produces a terminal sporangium. Branching may occur without any such swelling of the main hypha.

It frequently happens that zoospores are unable to escape from the opening of the sporangium, sometimes owing to one of their number becoming wedged in the aperture. They then germinate *in situ*, and long germ tubes grow through the containing wall of the sporangium (Fig. 119). This failure on the part of the zoospores to escape is not apparently inimical to continued growth of the sporangiophore, and thus occasionally a group of captive zoospores occurs together with a hypha or a new sporangium which is forcing its way through the germinating mass (Fig. 119). Under normal circumstances, however, the zoospores escape into the water, and after a period of active motion, come to rest and round themselves off. They then measure 12-14μ in diameter. A single, non-septate germ tube is produced, and after this has grown to a considerable length, one or two additional germ tubes grow out from the same zoospore (see Fig. 119).

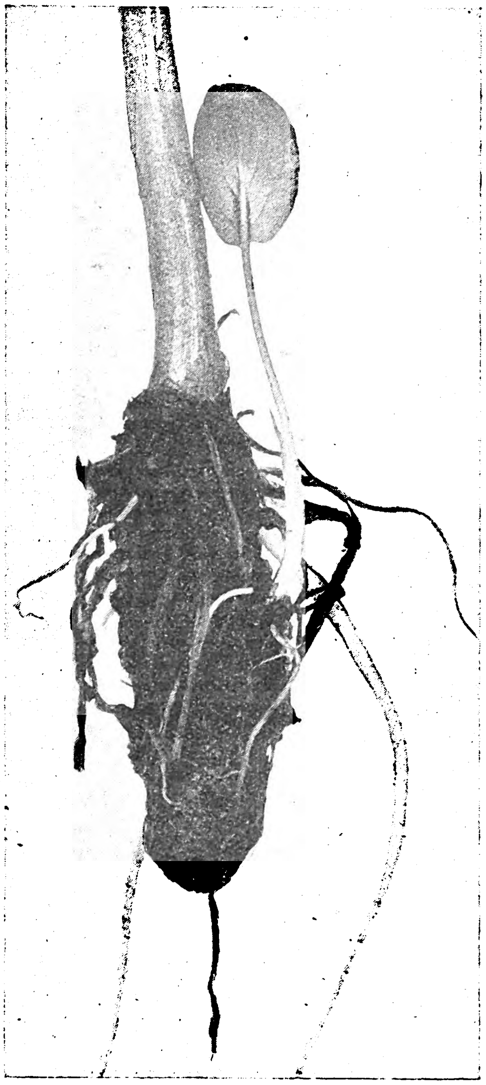


FIG. 117.—ROOT ROT OF RICHARDIA.

Part of plant (left side of Fig. 116) showing the collapsed, dark brown roots in an advanced state of decay. Natural size.

Very numerous smooth, thick walled, round oospores were observed in recently attacked roots. These measured 14-20μ (mode 18μ), but whether these are connnected with the Phytophthora described can only be determined by further investigation.

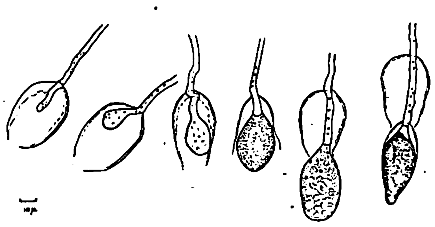


FIG. 118.—ROOT ROT OF RICHARDIA.

Successive formation of sporangia of the fungus. A sporangium (left) has recently discharged its zoospores and the sporangiophore is beginning to grow into the cavity. On right, the process is nearly completed for the second time. × 217.

The manner in which the disease has been introduced (unless the fungus is a native) must in this case remain unknown since the grower states that, as far as can be traced, the present stock of Callas has not been supplemented from outside sources for twenty years. It is already known that other species of Phytophthora may be introduced into premises formerly free from disease, by means of surface drainage water or even by the use of a contaminated water supply.*

As regards the measures of control to be adopted, we can at present only advise the use on an experimental scale, of the formalin solution found effective by Dr. C. J. Buisman, and we would specially emphasise the necessity for not using infected earth or pots for corms which have been thus sterilised. The value of "Cheshunt Compound" for keeping in check the ravages of Phytophthora cryptogea, which spreads in the soil, suggests that this might prove to be a valuable additional means of controlling the spread of the present fungus.

When visiting a nursery near Folkestone, on March 22, a further case of the above-described disease was met with. The foreman had noticed a number of his Richardias or Arum plants (which had been raised from seed) showing a yellowing of the foliage accompanied by a root-rot. We kept specimens of these in water for one day in the the laboratory and then found, on examination of diseased roots, sporangia of the Phytophthora.

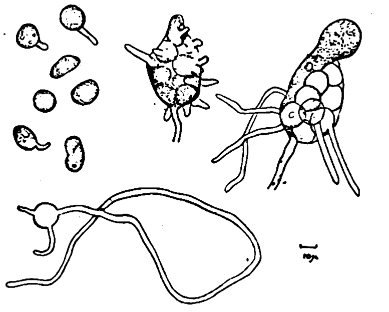


FIG. 119.—ROOT ROT OF RICHARDIA.

Left, zoospores after escaping from a sporangium and swimming in water, have come to rest and are germinating with one to three germ tubes. Right, zoospores which have failed to escape and from which germ tubes are growing through the wall of the sporangium. × 217.

Having now found that a root rot of Richardias with which Phytophthora Richardiae is associated, is present in this country, we await with interest the publication of Dr. Buisman's full account of the fungus. *E. S. Salmon and W. M. Ware, South-Eastern Agricultural College, Wye, Kent.*

---

* Bewley, W. F. *Diseases of Glasshouse Plants.* London, 1923, pp. 16 and 29.

PUBLIC PARKS AND OARDENS.

A scheme is under consideration for the provision of new recreation grounds at Whitecraigs, near Glasgow.

The Ministry of Health has held an enquiry at Lewisham Town Hall regarding a proposal by the L.C.C. to take 225 acres of the 500 undeveloped acres of the St. Germans estate, for use as open spaces.

Mr. Costain, of Messrs. R. Costain and Sons, Ltd., has presented the Willesden Urban District Council with land on the north side of the North Circular Road, for a recreation ground.

Guiseley Urban District Council proposes to provide pleasure grounds in Otley Road, at an estimated cost of £1,200.

The Urban District Council of Cleveden has decided to purchase Wain's Hill with a view to preserving it as an open space.

Wimbledon Town Council has agreed to negotiate for the purchase of about eighteen-and-a-half acres of land off Woodhayes Road, for an open space.

Cudham Parish Council is asking Bromley, Kent, Rural District Council to acquire land for a recreation ground at Cudham East.

Golcar Urban District Council has accepted Lord Savile's gift of the Crow Lane Recreation Ground, and the conditions attached thereto, provided a period of five years is allowed to carry out the work required.

Bridgwater Town Council has approved proposals prepared by the Borough Surveyor for improving the various parks as follow:—Victoria Park, £4,500; Eastover Park, £2,371; and Cannon open space, £144.

Sir William Berry, of Barrow Hills, Long Cross, has offered to give about 23½ acres of the St. Ann's Hill estate, Chertsey, to the Chertsey Urban Council as a gift to the district. The estate is one of the prettiest in Surrey, and commands a view of four or five counties. Charles James Fox, the statesman, lived at St. Ann's Hill House.

The Yiewsley Urban District Council has been informed of the intention of the Middlesex County Council to contribute £307 towards the cost of acquiring Clark's Meadow for a recreation ground.

Llantarnam Urban District Council proposes to make application for sanction to borrow £590 for the purchase of land for a recreation ground.

Bognor Urban District Council is seeking the sanction of the Ministry of Health to purchase land for pleasure grounds and a motor park. The price is £5,000.

The Giffnock Ratepayers' Committee recommends the Eastwood Landward Committee to purchase five or six acres of land for recreation purposes.

FRUIT GARDEN.

BIENNIAL CROPPING OF APPLES.

Mr. Grigor Roy (p. 200) naturally assumes that my grass orchards are grazed by stock. I have so often described the sod-mulch system which I follow that I omitted to mention it on this occasion. I agree entirely that, if the grass is kept close grazed by stock, provided that the animals are given plenty of concentrated food, the trees receive all the nitrogen they require; and the only further manuring needed is an occasional dressing of some phosphatic fertiliser.

In my conditions, however, I find that the sod-mulch system gives good results, and I am not using stock so far. The grass is mown twice a year, and spread over the surface as a mulch, which soon disappears into the soil. I manure the grass with cheap mineral fertilisers. These are, no doubt, used largely (not entirely) by the grass at first; but the plant food goes back into the soil in organic form when the grass is mown. I like this system because it greatly enriches the soil in humus, which is badly needed. Also the trees are less likely, I think, to suffer from drought than where the land is grazed. The nitrate of soda does, of course, give a rank growth of grass; but this I like, because it means a thick mulch when the grass is mown. I take care to keep my orchards supplied with phosphatic and potassic manures as well as nitrogenous fertilisers, as I thoroughly believe in balanced feeding.

I am applying nitrate of soda now, as I want more growth. Phosphates and potash will probably follow in the autumn.

Past experience has shown me that I can get growth even in rather old, stunted trees, in grass, by the use of nitrate of soda. In some cases such trees have taken on quite a new lease of life. *Market Grower.*

ORANGES IN POTS.

Oranges are easily grown, and the yield of some Orange trees in pots is simply astounding; many years ago few gardens of note were without a collection of these trees for decorative as well as edible purposes.

At this season, after the crop is cleared, the trees should be kept rather cool, and advantage taken of this period of rest to repot any trees that require it, but this is not needed oftener than once in two or three years. A surface dressing of good fibrous loam, bone-meal, and a little charcoal is generally sufficient, beating it down firmly with a rammer.

When used for decorative purposes, a temperature of 50° to 55° at night and up to 70° by day with sun-heat, will be suitable, with 5° to 10° higher with sun-heat when the fruits are swelling.

Watering should be done carefully; little moisture is required at certain seasons. Scale insects must be kept in check by syringing and sponging the leaves.

Aged trees generally set too many fruits, and unless the latter are thinned freely the Oranges will be small and the trees weakened; if they are thinned freely the fruits that remain will hang on the trees longer after they are ripe, but the greater portion should always be gathered before the new blossoms open in the spring. *F. Jordan.*

FRUIT REGISTER.

PEAR MARÉCHAL DE LA COUR.

Not infrequently called Conseiller de la Cour, this very fine old Pear is worthy of a position on a south or west wall.

The large fruits are highly perfumed, juicy and possess melting flesh; they are lemon-yellow, almost covered with a pale cinnamon russet, and are in season during November. During that month it has many strong competitors for favour, but it should, nevertheless, find a place for its distinct, yet rich flavour.

The tree is a vigorous grower and does best on a wall, but will succeed in bush form, and it does well also on chalky soils. In warm situations it may be grown successfully as a standard.

This fine variety was raised by Van Mons, and first fruited about 1840. *Ralph E. Arnold.*

VEGETABLE GARDEN.

ENDIVE.

Endive is a valuable winter salad plant for private gardens. It grows best in a light, rich soil; a sunny position is desirable for late sowings.

It is seldom necessary to sow this crop earlier than July; a sowing made about the middle of that month, and another in the second or third week in August, are usually all that are needed.

Being a plant liable to "bolt" if it receives a check, it is advisable to sow thinly in the position where the plants are intended to grow. Scatter the seeds in rows made twelve inches to eighteen inches apart, and thin the plants in the rows to twelve inches or fifteen inches apart, according to the size of the variety. Raising plants in a seed-bed and transplanting them later may be practised under favourable conditions. Little additional attention is necessary beyond frequent hoeings, until about three months later, when the plants should be fully developed and ready for blanching. Two distinct methods of blanching can be adopted: one, generally adopted for earliest crops, is to treat the plants in the position in which they are growing; the other is to lift them and transfer them to such structures as frames, glass-houses, or a Mushroom house, in fact, any suitable building.

Dealing with the former method first, a day should be chosen when the plants are quite dry, the leaves being gathered together and tied with raffia. This system answers quite well for the earliest supplies, but covering with large flower-pots is more reliable. Various other means are used, but whatever method is adopted the chief point is to exclude light and moisture. Careful handling of the plants is necessary to prevent bruising them, for this causes premature decay.

For the latest supplies it is much safer to lift the crop when the plants are fully developed, and before the full effects of wintry conditions are felt, and store them in a frame, planting them fairly closely. Excluding rain and affording the plants protection from severe frosts are all that is necessary.

Batches may be transferred as required to a Mushroom house or some other convenient structure, or some of the plants may be blanched in the frame in which they are stored by covering them with some suitable material.

Blanching early in the autumn usually takes about ten days, and so long as three weeks as the season advances.

There are numbers of varieties to choose from, and these are divided into distinct groups, the one having entire, the other more or less deeply cut leaves. The range of colour varies from bright yellowish green to dark dull green.

Either Early Parisian Summer, or Summer Curled may be chosen for early use; Green Curled Winter, Staghorn and Broad-Leaved Batavian are all desirable varieties for late supplies.

In a trial of this vegetable at Wisley during the winter 1924-25, Fine Green Curled and White Curled withstood the winter without protection better than any other variety. *J. Wilson, Wisley.*

SKIRRET.

(Sium Sisarum.)

It is seldom indeed that this vegetable is seen in gardens. Its seeds are generally listed under "Herbs," but its tender, floury, and sweet roots are used like Salsafy and Scorzonera.

Skirret is a hardy perennial, but the whole crop should be taken up every year before growth commences in spring, otherwise the roots become useless for culinary purposes.

The seeds should be sown in groups of three or four, twelve inches apart, in drills made half-an-inch deep and eighteen inches apart, in April. Thin the seedlings to one in each group when they are about three inches high. Remove the flower heads so soon as they appear, and commence lifting the roots in October. Twist off the leaves and store the roots in layers in sand or dry soil in a cellar or outhouse until required for cooking. Skirret is raised from seeds annually for producing roots for culinary purposes. *E. A. S.*

HOME CORRESPONDENCE.

Deep Trenching.—I have been greatly interested in the varied letters that have recently appeared in your correspondence columns on this subject. Having had considerable experience of all kinds of soils in this country and Ireland, I consider it absolutely necessary to bring the bottom spit to the top when trenching, and the higher the quality required, whether of flowers, fruits or vegetables, the deeper the ground should be dug. Should the soil consist of very heavy clay, as it is here in Sussex, I advise working in plenty of material, such as leaf-soil, sand and mortar rubble, that will lighten the texture; this will bring the ground into a deep-rooting medium for plants. All agree that Mr. Edwin Beckett stands above all other vegetable growers, and I very much doubt if there are any other gardeners who have had such a wretched soil to deal with at the beginning as that at Aldenham. Had he left the bottom soil in position, I am sure he would not have been able to exhibit the fine collections of vegetables, groups of berried and foliage trees and shrubs as he is constantly doing at our principal exhibitions. Any who are not convinced as to the advisability of adopting Mr. Beckett's method of trenching soil will be very welcome to come and see the result in these gardens from similar treatment of the land. *F. Streeter, Petworth Park Gardens, Sussex.*

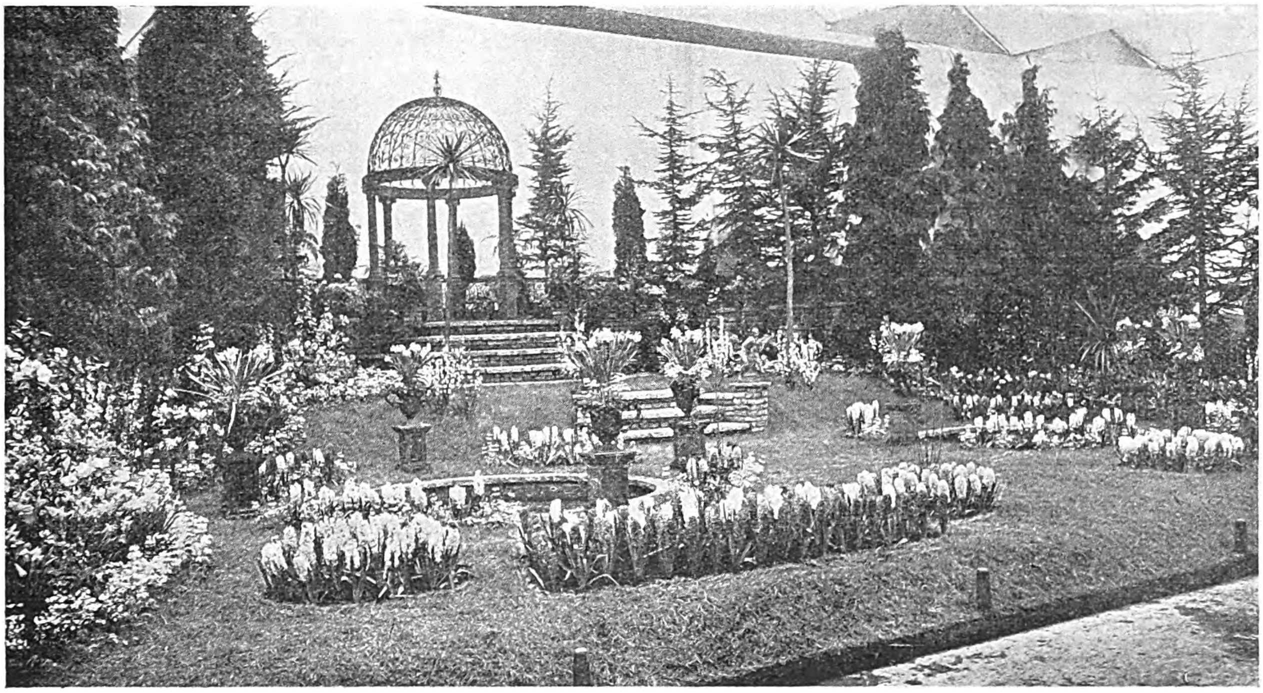


FIG. 120.—MESSRS. J. CARTER AND CO.'S ITALIAN GARDEN AT THE IDEAL HOME EXHIBITION, OLYMPIA.

(see p. 168).

Tree Onions.—On page 182, Captain E. A. Saunders asks information about the Tree Onions. I have often seen them grown in Scottish gardens and sent into the kitchen when other Onions were scarce, but cooks did not care to use them—possibly because they were more pungent than the common Onion. Tree Onions may be valuable in gardens where the soil is light and it is difficult to grow the ordinary kinds, but by sowing early in boxes most gardens will produce good Onion crops. I have never seen Tree Onions grown in England, and do not know if they are more useful for pickling than the Shallot or small, silver-skinned Onion generally used. Pickled Onions were never used where the Tree Onion was grown in Aberdeenshire. *Grigor Roy, Stoke d'Abernon Manor Gardens.*

Melilotus species (see p. 104).—Melilotus officinalis, Lam., has the yellow petals all equal and the pod acute and hairy; M. altissima, Thuill, has the yellow wings and standard longer than the keel, and the pod obtuse, ribbed and smooth. The former is usually known as Common Melilot, and is supposed to be a native plant; the other is certainly an alien. Both are, however, probably aliens since both are scarcely ever found except in cultivated or ex-cultivated places, or places where foreign produce is landed. No doubt the old herbalists used them indiscriminately. *C. Nicholson.*

Iris unguicularis.—I was interested to read, on p. 142, Mr. Coutt's directions as to the treatment of Iris unguicularis (syn. stylosa). Those of your readers who garden on the poor chalky soil which so eminently suits this and many other Irises may care to know of the treatment which I have found successful. We had at Swanley a large, old clump of this Iris, which had been in the same place, to my knowledge, for at least fifteen years, and was therefore very congested and starved. In September, 1925, I lifted it, divided it into pieces from four inches to six inches across, and replanted these divided portions very late in the autumn. This February there were twenty-three blooms, and the lovely little blue patch was a glorious foretaste of spring. *Lucy H. Joshua.*

Vita Glass.—I have been hoping that someone with longer experience than myself would reply to my friend Mr. R. Brooman-White's enquiry in your columns for the experience of your readers in growing Orchids under Vita glass. For some time I have been experimenting with Vita glass and also with various forms of artificial lighting producing ultra violet rays, thus securing those rays and extending the lighting period; but my experiments are too incomplete to give reliable results. Apparently, I may be first in exploring a field which I have long held offers many possibilities; if not, it would be very interesting to hear what experiments have been made and the results obtained. The only hint I can give Mr. Brooman-White is, that the ultra violet ray will not refract through ordinary shading; so that Orchids which are shade-loving present a different problem to the children and monkeys to which he refers, which delight in the bright sunshine. *Jeremiah Colman, Gatton Park, Surrey.*

Gentians.—It was with great interest that I read Dr. Amsler's notes on Gentians, following those written by myself some little time ago. Firstly, I must correct an error into which, I am afraid, Dr. Amsler has fallen through a similarity of initials; the notes were not, as he imagines, from the pen of Mr. W. E. Th. Ingwersen, but from a far less worthy source, namely, that of his son whose earnest wish is to follow as nearly as possible in the footsteps of his father. I note that Dr. Amsler expresses disappointment at my omission of several well-known species. The notes were really intended only for random jottings of some favourites of my own, and also as a step towards getting into touch with fellow lovers of this genus. G. scabra, which Dr. Amsler mentions particularly, I have at present only in the seedling stage, and though I hope and believe it is true, I cannot yet write with any certainty about it. G. septemfida is, of course, extremely beautiful, although I, unfortunately, do not possess the Cambridge blue form which Dr. Amsler mentions. A very unusual, and even startling, form which I saw for the first time in a friend's garden last year, had the individual flowers of the cluster almost twice the usual size, and instead of the usual, funnel-shaped flowers had wide-mouthed urns of a fine deep blue. There is at present no stock of this form, but later I hope it may be increased. From what Dr. Amsler states of his reputed plant of G. Kurroo, I cannot think that he had the true plant. A friend of mine has at last got the really true plant, and it promises to be quite distinct from G. Purdomii, but it is very hard, in fact, almost impossible, to say anything definite with regard to it at present. I have seen quite a dozen plants, all professing themselves G. Kurroo, and all turning out imposters, so, as I mentioned in my previous notes, I have almost given up hope of ever owning it. I am greatly pleased that my few notes have been of interest to enthusiasts, as is proved by the correspondence I have received, and by the letters published in the correspondence columns of *The Gardeners' Chronicle* subsequently. *Will Ingwersen.*

SOCIETIES.

BRITISH CARNATION.

March 29 and 30.—The annual Show of the above Society must be accounted the best it has ever held. There was a large number of excellent flowers set out in the various classes, and the attendance at the R.H.S. Hall, Vincent Square, was distinctly good on the first day. Considerable interest was centred in the *Daily Mail* Gold Challenge Cup which was offered for new Perpetual-flowering Carnations. There were eleven entries, and the Cup (Fig. 121) was won by Mr. A. F. DUTTON, Iver, with a superb novelty. In the judging, fragrance was given a maximum of sixty points, size fifteen points, and colour, substance, stem, form and calyx five points each. The points awarded by the judges were not published, but there could be no doubt as to the merits of the variety which won the Cup. It was named Mrs. A. J. Cobb, and is an immense bloom of rich velvety-crimson colour, distinctly fragrant, and possessing all the qualities of a first-class variety.

Open Classes.

Messrs. C. ENGELMANN, LTD., were alone in the class for seven varieties, twenty-five blooms of each, in seven vases, but they were deservedly awarded the Monro Challenge Cup for an admirable collection of Spectrum, Master Michael Stoop, Mrs. Hamilton Fellowes, Cupid, Topsy, Katja and White Enchantress. Messrs. C. ENGELMANN also won the first prizes for three vases, twelve blooms each, of British novelties, showing excellent vases of Rouge, Nero and Circe Improved. Messrs. ALLWOOD BROS. were second with good vases of Master Michael Stoop and Shot Silk.

The first prize offered by the American Carnation Society for fifty blooms of Laddie was won by Messrs. C. ENGELMANN, LTD., who were also awarded the first prize for not fewer than one hundred excellent blooms of Vesta, and Mr. WALTER HEMUS was a good second with Dora. Messrs. ALLWOOD BROS. were first with fifty blooms in three or more varieties.

The best twenty-five blooms of a British-raised variety were of Vesta, shown by Messrs. C. ENGELMANN, LTD.; Messrs. ALLWOOD BROS. were second, with the variety Edward Allwood, and Mr. H. T. MASON third, with Magnum.

In the class for twenty-five crimson Carnations, scent was to be taken into consideration by the judges, and the first prize was won by Messrs. C. ENGELMANN, LTD., with Topsy, while Mrs. WALTER BURNS, North Mymms Park, Hatfield, was second with the same variety.

There were only two exhibits of boxes of blooms to illustrate methods of packing, and Messrs. ALLWOOD BROS. were first. In the class to illustrate the best keeping varieties, the competition was very good. The boxes had been packed since the previous Saturday, and all the exhibits had kept well. The first prize was won by Messrs. C. ENGELMANN with the variety Lady Northcliffe, which, in addition to good size and great freshness, was still very fragrant. Mr. H. T. MASON, showing Topsy, Spectrum and Eros, was first, with three vases of three distinct varieties.

In the colour classes, the competition was very good, and all the flowers were of a high order of merit. White Pearl was adjudged the best variety. Laddie, shown by Messrs. C. ENGELMANN, was the best light pink, and Magnum, shown by Mr. H. T. MASON, was second. Mary Allwood staged by Messrs. ALLWOOD BROS., was the best medium pink, and Hebe, shown by Messrs. ENGELMANN, was the second best. A vivid rose variety, called Ypres, shown by Messrs. C. ENGELMANN, LTD., was first in the deep pink class, and Master Michael Stoop, shown by Messrs. ALLWOOD BROS., second.

Spectrum, shown by Mr. H. T. MASON, proved to be the best red variety, and also the Silver-Gilt Medal variety in the section. In Topsy, Messrs. C. ENGELMANN, LTD., had the best crimson, and Mr. W. H. PAGE was second with the same variety. Katja, shown by Messrs. C. ENGELMANN, LTD., was first in the class for varieties taken from the G. and H. Lists. Maine Sunshine, shown by Messrs. C. ENGELMANN LTD., was the best yellow, and Carola Striata, by the same exhibitor, was the best Fancy. Messrs. ALLWOOD BROS. were first with a vase of twelve blooms, illustrating the first twelve colour classes, and Saffron, shown by Mr. W. H. PAGE, was the best apricot variety.

Amateur Classes.

There were three very creditable exhibits of twelve plants of Perpetual-flowering Carnations, and S. T. HOSE, Esq. (gr. Mr. T. Humphrey), Warham Hall, Bletchworth, won the Lord Howard de Walden Challenge Vase with excellent plants of such sorts as Topsy, Red Laddie and Betty Lou. R. CHETWYND-STAPYLETON, Esq. (gr. Mr. W. Meager), Headlands, who was second, had well-grown plants of Laddie, Brilliant and Royal Purple in his exhibit.

The class for a decorative arrangement on separate tables was very popular, both with the exhibitors and the visitors. Sir RANDOLF BAKER, Bt. (gr. Mr. A. E. Usher), Ranston, Blandford, was first with a handsome display which included especially well-grown blooms of Spectrum, Lady Baker, Laddie and Topsy. R. CHETWYND-STAPYLETON, Esq., was second with another attractive display.

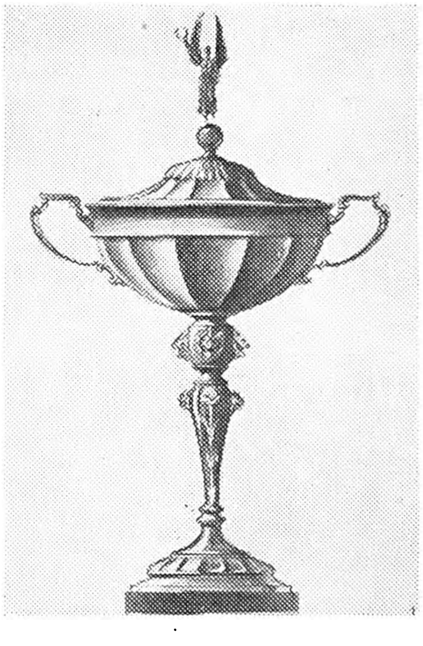


FIG. 121.—"DAILY MAIL" GOLD CUP.
Awarded to Mr. A. F. Dutton for Carnation Mrs. A. J. Cobb.

Sir RANDOLF BAKER was a very successful exhibitor, and he won the first prizes for the following: a vase of Messrs. STUART LOW AND CO.'s novelties; the best light pink variety, with Laddie; the best medium pink from List C., with Mary Allwood; and from List D., with Glorious; the best red with Spectrum; the best crimson with Topsy; the best yellow or yellow-ground Fancy with Saffron; the best purple or mauve, with Mrs. Hamilton Fellowes; and the best twenty-four blooms in not fewer than four varieties. The best white variety was White Pearl, shown by R. CHETWYND-STAPYLETON, Esq., and LADY MOND, D.B.E. (gr. Mr. W. Petty), Melchet Court, Romsey, showing excellent blooms of Lady Hillingdon, was first in the class for Fancy Carnations.

The classes for amateurs who do not employ a full-time gardener, and for those who were unable to stage their flowers, resulted in very gratifying competition.

The class for a decorative vase of not more than twenty-five blooms was very attractive, and Mrs. WALTER BURNS was first, and Sir RANDOLF BAKER, Bt., was second respectively with tasteful exhibits. Major H. LYNCH (gr. Mr. A. Swann), Colewood, Haywards Heath, had the best decorative bowl of Carnations.

The dinner-table decorations were very tasteful. The first prize was won by Sir RANDOLF BAKER with a delightful arrangement of Lady Margaret Boscawen, with appropriate foliage, and Mrs. A. SWANN, Colewood Lodge, Haywards Heath, was a good second in this interesting class. The first prize for a table arranged by a florist was won by Mrs. LEWIS COKER.

The class for a bouquet, sprays, buttonholes and vases of Carnations, also exhibited by florists, was an attractive feature. The first prize was awarded to Messrs. ROBERT GREEN, (1911), LTD., but we preferred the lighter and more graceful displays of Messrs. R. F. FELTON, LTD. Messrs. HARRODS, LTD., were third.

Groups of Carnations.

Around the hall there were large collections of cut Carnations arranged by the principal trade growers, and these added materially to the general effect of the show.

THE BRITISH FLORISTS' FEDERATION was responsible for a magnificent display which well merited the praise it received from all. This was by far the largest exhibit in the hall, the material being supplied by various members of the Federation. As was to be expected Carnations were the most numerous, but as the object of the exhibit was to illustrate the best varieties of home-grown flowers now obtainable from florists, there were also Roses, Hydrangeas, Astilbes, pink Cinerarias, Hyacinths and Erica melanthera, all exemplifying the skill of the greatest commercial growers of the world. With this material, Mr. H. JOLIS, a well-known member of the Federation, arranged a display which was a model of what an exhibit by such an important body should be. In the centre, there was a double-tiered vase of graceful design and ample proportions filled with bright crimson blooms of Carnation Topsy, with White Wonder below. The base of the vase was filled with mauve Hyacinths, pink Astilbes, and the white Erica melanthera. Dark green Cypresses and graceful Palms, with an occasional pillar Rose, made a good background for the many vases and stands of Carnations, of which the principal sorts were Brilliant Improved, Aviator, of rich scarlet colour, Royalty, an attractive Fancy, and John Page, medium pink. The general edging was composed of Erica melanthera and Funkia Sieboldiana aurea.

In a corner space, the FLORISTS' TELEGRAPH DELIVERY ASSOCIATION had a very attractive exhibit of seasonable flowers, such as might be despatched in response to an order from any distant part. Mr. W. H. PAGE set up half-a-dozen excellent vases of Carnations. Those of Clarice Page, vivid crimson; John Page, medium pink, and Edward Page, rose pink, were, perhaps, the very best.

Considerable space under the wall was filled by Messrs. C. ENGELMANN, LTD., with a large collection of splendid cut Carnations. Not only was the exhibit extensive and comprised of many excellent varieties, but it was arranged with considerable skill and taste. Without being massive, the principal vases were generously filled with first-rate blooms of fresh and bright colours. The chief varieties were Laddie, Dorcas, Spectrum Rouge, White Enchantress and Snow White.

The display arranged by Messrs. ALLWOOD BROS. was also of great merit. By the Orchid annexe they made an attractive Carnation garden with many plants of the relatively new perpetual-border varieties and Dianthus Allwoodii. Next they had many vases of first-rate blooms, principally of the deliciously fragrant Mary Allwood, Topsy, Maine Sunshine, Spectrum, Red Laddie and Canadian Pink. In addition to their floral display, Messrs. A ALLWOOD Bros. filled a large space with literature and various sundries of value to the Carnation grower.

Goodly vases of fine blooms were set up by Messrs. STUART LOW AND Co. in considerable quantity. Prominent positions were given to splendid vases of White Pearl, Philip Sasoon, Ruby Glow, Mrs. Hamilton Fellowes, Daphne and Arnos Groves, though there were other sorts of value.

Messrs. Keith Luxford and Co. also set up a collection of Carnation blooms which helped to make the attractive show. Their chief varieties were Red Laddie, Aviator, White Wonder and Topsy.

An admirable collection of Narcissi was arranged by Messrs. Barr and Sons, in which we noted several excellent seedlings, as well as many of the best named sorts. The Central Garden Supplies had a well-arranged collection of seasonal border flowers and forced shrubs.

New Varieties.

There were nine new seedlings or improved varieties before the Floral Committee, who wished to see two varieties again, and granted an Award of Merit to:—

Lady Margaret Boscawen.—A bright pink flower of medium shade and possessing all the essentials of a first-rate decorative Carnation. The shapely, good-sized flowers are borne on long, stiff stalks, and the calyx does not split. It appears to be a very free-flowering variety, but we could detect no fragrance. Shown by Messrs. Lowe and Shawyer.

Mi'ady, which the Committee desired to see again, is an attractive, blush-pink Carnation of large size and good form, but the outer petals are often nearly white, which gives them a bleached appearance. It was shown by Mr. E. W. Bishop, Elmhurst, Windsor.

Souvenir, a useful pale pink flower of good type, and possessing slight fragrance, the Committee wished to see again, also growing plants. It was shown by Mr. G. Clarke, Leighton Buzzard.

Medals.

The Judges awarded a Large Gold Medal and special congratulations to the British Florists' Federation for their magnificent exhibit. Large Gold Medals were awarded to Messrs. C. Engelmann Ltd., and Messrs. Allwood Bros.; a Gold Medal to Messrs. Stuart Low and Co.; a Silver-Gilt Medal to Messrs. Keith Luxford and Co. and a Silver Medal to Mr. W. H. Page for their exhibits of Carnations.

BIRMINGHAM AND MIDLAND COUNTIES.

At the recent meeting of the above Association, Mr. A. Jones occupied the chair, and Mr. J. Palmer, of Messrs. Simpson and Sons, gave a lecture on "The Propagation of some Herbaceous Plants." He recommended the renewed propagation and planting of herbaceous plants, for the production of good quality flowers, by one of the following methods; seeds, top-cuttings, root-cuttings, and division. March was recommended as the best time for re-planting, as the plants soon become established in spring and there is little risk of them failing.

READING AND DISTRICT GARDENERS'.

"How I grow Melons and Cucumbers," was the title of a paper read by Mr. F. J. Green, Aldermaston Court Gardens, before a large attendance of the members of this association, on the 7th ult. The President, Mr. Frank E. Moring, presided. In his opening remarks Mr. Green stated that the Melon had been grown in England since the sixteenth century and was introduced from Jamaica. Full cultural details were given as to the raising of early and summer crops. With regard to Cucumbers, Mr. Green said there was no certainty as to its origin, but it was introduced into England during the sixteenth century from the East Indies. Full cultural details were given and preventives suggested against diseases. His plan was to grow Cucumbers on the extension system, and he stated that from four plants he was able last season to cut over eight hundred good Cucumbers.

The competitions arranged for the evening were for Violets, and eight vases were staged. In the class for twenty-five blooms of single Violets the first prize was won by Mr. J. Kitt, Wasing Place Gardens, Newbury; the second by Mr. A. W. Gower, Calcot Grange Gardens. The best twenty-five blooms of double Violets were shown by Mr. J. Wynn, Luerns House Gardens, Goring; second, Mr. J. Kitt.

In the non-competitive section there were several excellent exhibits. A First Class Certificate was awarded to Mr. W. Broomfield, Clyffe House Gardens, Mapledurham, for a splendid plant of Cymbidium, carrying three grand flowering spikes. Awards of Merit were granted to Mr. A. W. Gower for several fine plants of Cinerarias, and to Mr. A. Kendall, Clyffe View, Mapledurham, for a vase of Narcissi. Mr. F. H. Pratten, The Oaks, Shinfield Road, Reading, showed two vases of Violets of the varieties Mrs. Lloyd George and Tina Whitaker. Mr. F. Turner, Southview, Calcot, staged some good sticks of Rhubarb.

The fortnightly meeting of this Association was held on the 21st ult., when Mr. R. J. Lloyd presided.

Mr. F. Townsend, Hillside Gardens, Reading, gave a lecture on "Lawns and their Upkeep." He dealt with the selection and preparing the site for sowing and turfing lawns, the upkeep of lawns, the renovation of old lawns, and the treatment of lawns for sport. A series of lantern slides added greatly to the interest of the lecture.

GLASGOW AND WEST OF SCOTLAND.

Mr. T. Anderson, M.A., B.Sc., of the Board of Agriculture for Scotland, was the lecturer at the monthly meeting of this Society on the 9th ult.

Taking for his subject "Potato Diseases," he referred at some length to wart disease. He said there was no known method of eradicating the disease in the soil, because in a thoroughly infested garden the spores were in every inch of the ground down to a depth of eighteen inches. The only way to control the trouble was by growing immune varieties, and he thought it was probable they would be able to supplant all the old, susceptible sorts with new varieties equally as good in quality and cropping and free from wart. The most likely places to which to find the disease was in private gardens and allotments, and in this connection he mentioned that the West of Scotland was the worst affected area in Scotland because of its industrial conditions and liability to a greater amount of seasonal rain than they were subjected to on the east coast. The law which prohibited the cultivation of a non-immune Potato in Scotland was no hardship, because there was a good selection of immune varieties, of which he recommended for early crop, Witch Hill and Immune Ashleaf; second-early or mid-season, Arran Comrade (which was a good substitute for British Queen), Great Scot and Abundance; late or main crop, Arran Victory, provided it was consumed before Christmas, when it began to sprout; Kerr's Pink and Golden Wonder. Arran Consul he would not actually recommend, except when a late keeping variety was wanted.

Other diseases discussed were corky scab, leaf-curl, mosaic and blight. In respect to "seed" he observed that it was the custom of people who had small gardens to save the smaller tubers for seed purposes, but he suggested that it would be more satisfactory to select the best plants, and keep the whole produce of these plants for seed. A lengthy and interesting discussion followed Mr. Anderson's remarks.

IPSWICH AND DISTRICT GARDENERS'.

At the monthly meeting, held on March 10, Mr. F. J. Chittenden, V.M.H., F.L.S., delivered a very interesting lecture on "The Wisley Rock Garden." There was a large attendance presided over by the President, Mr. W. Bradbury. The history of the rock garden was dealt with, its site, rocks used, and the variety of plants grown in it. A lengthy discussion followed, many interesting points being brought out by the questions of the members.

A fair display of exhibits were staged in the monthly competition.

Obituary.

David Crombie.—Many horticultural friends in Ireland will be sorry to learn of the death of Mr. David Crombie, who was for many years in charge of the Marquis of Waterford's famous garden at Curraghmore, Co. Waterford, and previously gardener at Powerscourt, Co. Wicklow. Mr. Crombie's demise, which occurred on March 20, at the residence of his son, at Longhirst, Morpeth, was not unexpected, as he had suffered from recurrent heart attacks for some time. Mr. Crombie was seventy-six years of age. A full account of his career, together with his photograph, was published in *The Gardeners' Chronicle* on the occasion of his retirement from the active pursuit of his profession. Mr. David Crombie was one of the best-known gardeners in Ireland, and during a great many years he acted as a judge at the principal fruit and flower shows held in that country.

F. Dewing.—We regret to announce the death, on the 19th ult., at his home, 61, Portnall Road, Maida Vale, W.9., after a long illness, of Mr. F. Dewing. Until his illness, he was gardener to E. Heseltine, Esq., The Goldings, Great Warley, Essex. He was formerly gardener at Spellon Hill, Knaresborough, and for many years at Newton Hall, Stocksfield-on-Tyne. He leaves a widow to whom we extend our sympathy. The interment took place at Kensal Green Cemetery, on the 23rd ult.

Paul Lefebvre.—Belgian horticulture has sustained a sad and unexpected loss by the death of M. Paul Lefébvre, an Inspector at the Ministry of Agriculture, specially attached to the Horticultural Department. He was only forty-six years of age, and died as the result of an accident, having fallen down the stairs leading to a cellar, and fractured his skull. He was an indefatigable worker and exceedingly popular with all who knew him; the Director of Horticulture, M. Van Orshoven, held a high opinion of his attainments. His funeral, which took place on Wednesday, the 23rd of March, was attended by large numbers of his colleagues and friends, including a representative of the Ministry of Agriculture, and M. van Orshoven, the Director of Horticulture, in person. The cortège was led by the elder of M. Lefebvre's two young sons, besides whom he has left a widow and little daughter.

ANSWERS TO CORRESPONDENTS.

Black Dots on Arum Leaves.—*A. H.* The small, black spots on your Richardia (Arum) plants are the fructifications (sporangia) of a fungus, Pilobolus, which, growing on the cow manure, have been shot up on to the foliage, etc.

Calceolarias with Yellow Foliage.—*T. S. C.* From the condition of the plants they appear to have been kept too cold and damp. The roots appear to be numerous and quite healthy, and with a little more warmth and sunlight the plants should grow out of their unhealthy condition; try also the effect of a little weak nitrogenous fertiliser, which might help to restore the green colour in the leaves.

Blue-flowered Hydrangeas.—*T. L.* It is claimed that a proprietary preparation known as Cyanol has the effect of causing the flowers of Hydrangeas to assume a blue tint. Others state that sulphate of iron and alum in solution, applied to the roots, has the same effect. Ammonia-alum is used by some growers for this purpose; this last is applied copiously twice a week at a strength of half-an-ounce in one gallon of water. The blue colour develops naturally in some cases and especially in plants grown near the coast, but it is always found that the tone is richer when the flowers are not exposed too much to the direct rays of the sun.

Communications Received.—J. H.—Ignoramus.—P. E. D.—W. S.—H. W.—E. H. W.—H. F.—J. B.—F. K.—J. G.—W. K.—W. M. W—R. C. P.—A. A. F.—E. J. B.—G. L.—H. A. B.

MARKETS.

COVENT GARDEN, Tuesday, March 29th, 1927.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—EDS.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d.	s. d.
Adiantum cuneatum per doz.	10 0	12 0
—elegans	10 0	15 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus	12 0	18 0
—Sprengeri	12 0	18 0
Aspidistra, green	36 0	60 0
Asplenium, doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Azaleas, various, 48's, each	4 6	7 6
— — 60's, per doz.	21 0	24 0
Boronia megastigma, 48's, per doz.	36 0	48 0
Cacti, per tray		
—12's, 15's	5 0	7 0
Cinerarias, 48's, per doz.	12 0	15 0
Cyclamens, 48's, per doz.	18 0	21 0

	s. d.	s. d.
Crotons, doz.	30 0	45 0
Cyrtomium	10 0	25 0
Daffodils, 48's, per doz.	9 0	12 0
Erica melanthera, 48's, per doz.	24 0	30 0
—60's ,,	12 0	15 0
—72's ,,	8 0	9 0
Genistas, 48's, per doz.	21 0	24 0
Hyacinths, 48's, 3's, per doz.	15 0	18 0
—60's, per doz.	10 0	15 0
Marguerites, 48's, per doz.	21 0	24 0
Nephrolepis in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	30 0	48 0
—60's	15 0	18 0
Pteris, in variety	10 0	15 0
—large, 60's	5 0	6 0
—small	4 0	5 0
—72's, per tray of 15's	2 6	3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun	12 0	15 0
cuneatum, per doz. bun.	8 0	10 0
Anemone fulgens, per doz.	3 0	4 0
Asparagus plumosus per bun., long trails, 6's	2 0	2 6
med. sprays	2 0	3 0
short ,,	0 9	1 3
—Sprengeri, bun. long sprays	2 0	2 6
med. ,,	1 6	2 0
short ,,	0 6	0 9
Azalea, white, per doz. bun.	4 6	5 0
Camellias, 12's, 18's, per box	2 0	3 0
Carnations per doz. blooms	2 0	3 6
Croton leaves, per doz.	1 9	2 6
Daffodils, per doz. bunch—		
— Golden Spur	2 0	2 6
—King Alfred	6 0	8 0
—Sir Watkin	2 6	3 0
—Victoria	3 0	3 6
—princeps	2 0	2 6
—Emperor	3 0	4 0
—Double Van Sion	5 0	6 0
Fern, French, per doz. bun.	10 0	12 0
Forget-me-not, per doz. bun.	6 0	9 0
Freesia, white, per doz. bun.	2 0	2 6
French Flowers—		
—Acacia (Mimosa), per doz. bun.	6 0	7 0
—Anemones, mixed, doz. bun.	5 0	6 0
— — double pink doz. bun.	2 0	3 0
—Myrtle, green, per doz. bun.	1 6	2 0
—Ranunculus—		
—double scarlet	5 0	6 0
—Violets, Parma, per bun.	1 6	2 6
—Stock, double white, per doz. bun.	3 0	3 6
Heather, white, per doz. bun.	6 0	9 0
Hyacinths, white, large, doz. bun., 6's	6 0	9 0
Iris, Spanish, per doz. bloom—		
— blue	2 6	3 6
— yellow	2 6	3 0
— mauve	2 0	2 6

	s. d.	s. d.
Lilac, white, per doz. stems	4 0	8 0
—mauve, per doz. sprays	5 0	6 0
Lilium longiflorum, long, per doz.	3 6	4 0
—speciosum rubrum, long, per doz. blooms	4 0	4 6
—short, doz. blooms	3 0	3 6
Lily-of-the-Valley, per doz. bun.	24 0	30 0
Narcissus, per doz. bunch—		
—Soliel d'Or	3 0	3 6
—Grand Primo	2 0	2 6
—ornatus	3 6	6 0
—Elvira	5 0	6 0
—Grand Monarque,	3 0	3 6
—Cornish White	2 0	2 6
Orchids, per doz.		
—Cattleyas	24 0	36 0
—Cypripediums	6 0	8 0
Primroses, per doz. bun.	1 6	2 6
Richardias (Arums), per doz. blooms	4 0	5 0
Roses, per doz. blooms—		
—Columbia	9 0	12 0
—Richmond	4 0	6 0
—Madame Butterfly	4 0	7 0
—Golden Ophelia	5 0	6 0
—Mrs. Aaron Ward	4 0	4 6
Smilax, per doz. trails	4 0	5 0
Star of Bethlehem (Allium), per doz. bun.	2 6	3 0
Tulips, per doz.		
—single white	18 0	24 0
— — yellow	18 0	21 0
— — scarlet	15 0	18 0
— — pink	18 0	21 0
—terra-cotta	21 0	24 0
—Murillo	15 0	18 0
—Couronne d'Or	21 0	24 0
—Prince of Austria	21 0	24 0
—Darwin, red,	21 0	24 0
— — pink	18 0	24 0
— — mauve	18 0	21 0
— double—		
—Lucretia	24 0	27 0
—Tea Rose	18 0	24 0
Violets, per doz. bun.	2 0	4 0

REMARKS.—Increased supplies have been general throughout this department during the past week; those from the Channel Islands and Cornwall have been the largest so far received this season, and consignments were difficult to clear at the very lowest prices on Saturday last. Outdoor Daffodils are being received from home growers, and supplies are on the increase daily. Of Roses, red blooms are the most plentiful; other sorts on sale include Madame Butterfly, Columbia, Ophelia, Golden Ophelia, Roselandia and Mrs. Aaron Ward. A few blooms of Niphetos have been on sale during the past week, but very few blooms of this variety are grown for market now, and the white Molly Sharman Crawford will be greatly welcomed. Carnations, like all other subjects, have been reduced in price owing to the increased supplies, which exceed the present demand. Cut white Hydrangea is now available in limited quantities. Spanish Irises are arriving in excellent condition and more varieties are on sale, the colours including blue, white, yellow and mauve; the prices of these flowers are on the down grade. The quantities of Richardias (Arums) still exceed the demand. Lilium longiflorum is a trifle firmer in price. The values of Tulips are similar to those of last week. Darwin varieties vary in price, according to their quality and condition. More foliage has been on sale, and prices are on the down grade for all species of Asparagus also Maidenhair Fern. In the French department, supplies have been very heavy during the past week, Double white Stock and Allium (Star of Bethlehem) have been most in demand. Most of the single Anemones have been affected by the milder weather and have reached the market in a very blown condition. Freesias, Marguerites, Marigolds and Parma Violets have been more reliable, and prices for the last have been the lowest this season.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, Virginian Albemarle	—	35 0
—Greening	28 0	30 0
—Oregon, Newtown	—	15 0
—Washington Winesap	12 0	14 0
—Nova Scotian—		
—Spy	18 0	24 0
—Baldwin	18 0	24 0
—Nonpareil	18 0	22 0
—Ben Davis	16 0	20 0
British Columbian—		
—Delicious	—	15 0
—Newtown	14 0	17 0
—English Bramley's Seedling	18 0	24 0
Bananas	17 0	25 0
Brazils, per cwt.	—	72 0
Grape fruit— per case		
—Blue Goose	30 0	40 0
—Jamaica	20 0	26 0
—Honduras	22 6	26 0
Grapes, South African, per case		
—Gros Colmar	12 0	14 0
—Hannepoot, red and white	8 0	15 0
—Waltham Cross	8 0	15 0
—Molinera	—	12 0
—Rosaki	8 0	14 0
—Barbarossa	12 0	14 0

	s. d.	s. d.
Grapes, Australian, ¾-bushel cases—		
—Red Prince	—	20 0
—Wortley Hall	—	22 0
—Waltham Cross	—	20 0
Lemons, Messina, boxes	10 0	18 0
—Naples, per case	20 0	26 0
Oranges, per case—		
—Jaffa, per case	22 0	24 0
—Californian Navel	30 0	32 6
—Denia	18 0	30 0
—Murcia	16 0	25 0
Pears, South African, per box—		
—Louise Bonne of Jersey	6 0	10 0
—Beurré Bosc	7 6	10 0
—Beurré Hardy	7 6	10 0
Pines, case	21 0	36 0
Plums, per box—		
—Kelsey	5 0	10 0
South African Peaches, per box—		
—Yellow Flesh	3 6	4 0
Strawberries (forced)—		
—special, per lb.	20 0	25 0
—best, per lb.	7 0	15 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus, Devon	3 0	4 0
—Cavaillon	3 0	3 6
—Special Lauris	5 0	6 0
—Best ,,	3 6	4 6
Beans, Forced—		
—Special	2 0	2 6
—Others	1 6	1 9
Beans, Madeira—		
—Finest	4 0	8 0
Beets, per cwt.	5 0	6 0
Belgian Chicory, per lb	0 3	0 3½
Cabbage, per doz.	2 0	2 6
Carrots, per ½-bag	4 0	6 0
Cauliflowers—		
—English, per crate	3 0	4 0
—St. Malo, crate	2 0	4 0
Celery, fan	2 0	2 6
Cucumbers, doz.	7 0	10 0
—Flats, 3, 3½, 4 doz.	27 0	30 0
French Endive, per doz.	2 6	2 6
Leeks, per doz.	2 0	2 6

	s. d.	s. d.
Lettuce, round, per doz.	2 0	2 6
Mint, forced, per doz.	4 0	6 0
Mushrooms		
—cups	1 9	2 6
—Broilers	1 3	1 6
Onions—		
Valencia	11 0	12 6
Parsnips, per cwt.	4 6	5 6
Potatos—		
King Edward— ton	£9/10	£10
—others, ton	£6	£7 10
Potatos, New—		
—Guernsey	0 8	0 10
—Canaries, case	10 0	20 0
Radishes, per doz.	1 6	2 6
Rhubarb, forced, per doz.	1 3	1 9
—Natural	4 0	6 0
Savoys, per tally	8 0	12 0
Seakale, per punnet	1 3	1 6
Tomatos—		
—English, per lb	—	6 0
—Canary Island	16 0	18 0
Turnips, per cwt.	4 0	5 0

REMARKS.—Business has been variable; the volume of produce shows considerable increase amounting, in some sections to a glut, bringing down values unduly low. In the case of South African fruits, although the quantities were extremely heavy, prices have held remarkably well. The fruits being imported at the present time consist mainly of Pears, Plums, Grapes and Peaches, and they are selling fairly freely. The first consignments of the year of Apples from New Zealand are on offer and making satisfactory prices, especially Cox's Orange Pippin. The first shipment of Australian Apples is due this week; at present we are receiving Pears and Grapes from that Continent. Apples are still available from the United States and Nova Scotia, as well as a few home-grown fruits. Forced Strawberries although very dear, are meeting a good demand. The Cucumber trade is inclined to be easier in consequence of increased supplies. A few Tomatos from the Worthing district are making high prices. Mushrooms, during the present week, were in heavy supply, but at the time of writing, there is a hardening in price, due to smaller quantities. French Beans are a good trade and their prices have recovered somewhat, compared with a week ago. Asparagus is quoted lower on increased consignments from France. Cauliflowers have been a drug on the market, and hundreds of crates have been sold at prices barely covering the cost of freightage. New Potatos from Guernsey are a good trade, and new Potatos from the Canary Islands are also selling well. Green vegetables are a quiet business, and salads are quoted cheaper. There is no change to report in the trade in old Potatos, good varieties only being enquired for.

GLASGOW.

The cut-flower market was under the influence of the weather last week. As a result of the heat wave, over 63° in the shade were registered on Monday. Tulip blooms arrived in a blown condition, and Daffodils were soft. Prices were consequently not an index of the true value of the flowers, and salesmen were in the position of having to accept whatever sums were offered. Daffodils were slow to move even at the following attractive values: Golden Spur and princeps, 1/- to 1/9 per dozen bunches; Emperor, 2/- to 3/-; King Alfred, 4/- to 6/-; special 6/- to 9/-; and ornatus (outdoor), 4 - to 6/-; indoor, 6/- to 8/-. Tulip prices were mostly normal, Murillo being worth from 2d. to 6d. per bunch of 6, Bartigon and Clara Butt, 5d. to 8d.; Tea Rose, 6d. to 8d.; Lucretia and La Reine, 6d. to 9d.; Couronne d'Or and Prince of Austria, 6d. to 10d.; double yellow and White Hawk, 9d. to 1/-; Luisante, 10d. to 1/-; and Madame Krelage, 1/- to 1/4 (12's). Prices of Carnations ranged from 3/- to 4/- per dozen; Roses made 3/- to 6/- per dozen; Richardias, 4/- to 6/- per dozen; Anemones 6d. to 1/-; Irises, 3/- to 3/6; Lily-of-the-Valley, 2/6 to 3/- per bunch; Lilac 1/6; Violets, 3d. to 6d. per dozen bunches; and Asparagus, 9d. to 1/6. Wallflowers of good quality sold for 1/9 to 2/3 per dozen, and Tomato plants, 1/- to 2/-.

In the fruit market Porto Rico Grape Fruit advanced 3/- to 24/- per case, and while the prices of Jaffa Oranges remained unchanged, those of Murcia counts were firmer, 300's making from 20/- to 24/-, and 240's, 20/- to 25/-. Cape Pears were dearer at 6/- to 6/6 per case of 32 and 36, and 7/6 for 28; and Grapes were obtainable at 10/6 to 11/- for white, and 14/ for Colmar and Royake. The value of Canary Bananas fluctuated between 17/ to 22/-. Pines averaged about 3/6 each, and Tomatos varied from 12/- to 25/- per bundle, according to quality. The Apple trade was steady, Winesap being quoted at 11/- to 14/- per case; Newtown at 12/- to 15/6; Baldwin at 18/- to 22/- per barrel; and Greening at 22/- to 26/-.

New vegetables are plentiful, and their values reflected little movement one way or another. Cauliflowers sold at 4/- to 5/6 per crate; Carrots at 1/- per bunch; Turnips at 10d.; Chicory at 4½d.; Seakale at 2/-; French Lettuces at 7/- (30) and Dutch at 6/-. Algerian Potatos realised 3½ per lb. Cucumbers 12/- per dozen, Endive, 2/-, and Rhubarb, 30/- to 36/- per cwt.

ENQUIRY.

I SHOULD be glad if any of your readers can tell me where I can obtain V-shaped iron bars for use on the under-stages of Orchid houses and upon which the coke is placed. I have hitherto used corrugated zinc sheets, but as the coke is in a constant state of saturation, the sheets soon corrode and collapse. I saw an advertisement, two or three years ago of the bars I want to try, but, unfortunately, did not make a note of it at the time. *H. Astley Bell.*

CATALOGUES RECEIVED.

CARTER AND CO., Raynes Park, S.W.20.—Lawns and Weeds.

WM. POWER AND CO., 25, King Street, Waterford, Ireland.—Farm seeds.

GARDENING APPOINTMENTS.

Mr. H. Norton, for the past two years gardener to LORD DENBIGH, Clifton, Beddington, as gardener to Mrs. SAMUDA, Brewern Abbey, near Kingham, Oxon. (Thanks for 2/- for R.G.O.F. Box.—EDS.).

Mr. H. S. Foster, for nearly twenty years gardener at Umberslade Hall, Warwickshire, and lately at Gledhow Hall Gardens, Leeds, as gardener to the EARL OF FEVERSHAM, at Duncombe Park, Helmsley, Yorkshire.

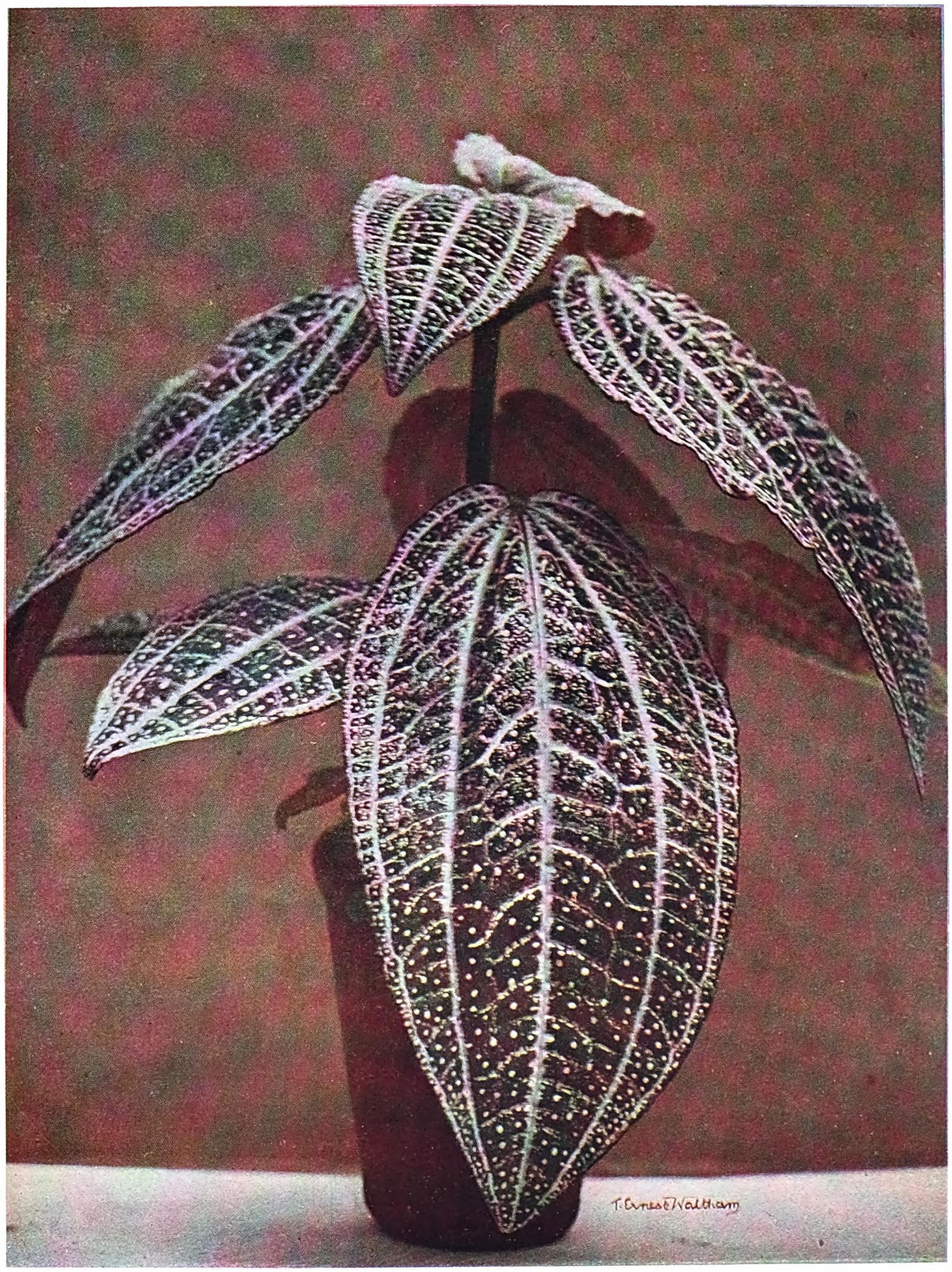
Mr. F. G. Clarke, for the past fifteen years gardener to H. MARTIN GIBBS, Esq., Barrow Court, Flax-Bourton, Somerset, as gardener to Col. The Right Hon. GEORGE A. GIBBS, Tyntesfield, Flax-Bourton, Bristol. (Thanks for 3/6 for R.G.O.F. Box.—EDS.).

SCHEDULES RECEIVED.

DORSET HORTICULTURAL SOCIETY.—Exhibition to be held in Ranston Park, on Tuesday and Wednesday, July 26 and 27. Secretary Mr. H. R. Tuffin, Ranston Gardens, Blandford, Dorset.

BRITISH GLADIOLUS SOCIETY.—Exhibition to be held at Taunton on Wednesday and Thursday, August 10 and 11, in conjunction with Taunton Deane Horticultural Society. Secretary, Mr. A. E. Amos, 10, Bergholt Road, Colchester.

Supplement to The GARDENERS' CHRONICLE


T. Ernest Waltham

BERTOLONIA MME. A. BLEU

THE
Gardeners' Chronicle
No. 2102.—SATURDAY, APRIL 9, 1927.

CONTENTS.

Alpine garden—
  Arnebia echioides ... 247
  Hepaticas 247
  Soldanella alpina ... 247
Arsenic on imported American Apples ... 242
Ashridge Park ... 243
Birmingham Botanic Society's show postponed 242
Books, notices of—
  Flowering Plants of South Africa ... 241
Cologne Municipal Gardens, new director of 243
Colour contrast ... 249
Conference of bulb-growers and dealers 242
Coniferae, the newer... 248
Daffodil Conference at Westminster ... 242
Florists' flowers—
  Chrysanthemums ... 253
Flower garden—
  Stocks 247
Flower show at Nice... 251
Friend, Mr. James ... 242
"Gardeners' Chronicle" seventy - five years ago 243
Garden, my small ... 245
Heidelberg Public Gardens, centenary of... 242
Herbarium specimens, method of preparing 242
Horticultural education in Belgium ... 242
Indoor plants—
  Bertolonias ... 246
Iris Society, American 241
Lilies in Scotland in 1926 253
Mesembryanthemum 251
Obituary—
  Charles S. Sargent... 257
  Guillion, Madame Louise 257
  Saunderson, Joseph 257
  Schöne, Karl ... 257
  White, E. 257
Orange, the Bizzarria 241
Orchid notes and gleanings—
  The Niveum group of Cypripediums 246
Plant collecting expedition in Western British Columbia, proposed 241
Plants, old-fashioned 242
Societies—
  Manchester and North of England Orchid 257
  Royal Horticultural 255
Sunlight rays in glass-houses 254
Trees and shrubs—
  Forsythias 247
Vegetable garden—
  Onions 254
Violas, a revision of ... 248
Ward's, Mr. F. Kingdon, ninth expedition in Asia 250
Week's work, the ... 244
Worshipful Company of Gardeners ... 242

ILLUSTRATIONS.

Carnation, Mrs. A. J. Cobb 249
Friend, Mr. James, portrait of 242
Mentocalyx Muiri... 252
Orange, the Bizzarria 243
Pear Tree Cottage, Ewell, Surrey, the garden at ... 245
Soldanella alpina 247
Ward's, Mr. F. Kingdon, expedition: views of ... 250

Coloured Supplement Plate.
Bertolonia Madame A. Bleu.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 46·5°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 6, 10 a.m. Bar. 29·75. Temp. 50°. Weather, Cloudy.

The Bizzarria Orange.

Believers in natural selection *à outrance* would have us behold Nature, "red in tooth and claw," practising the drastic law of economy with savage efficiency. But the Orchids and Strelitzias and even the Sundews, like the peacock and the many other elegant extravagances among plants and animals, show though she be, after the fashion of her sex, of realistic inclinations, Nature has in her —also likewise significant of the sex— more than a touch of romanticism. Now sober and severe, now exuberantly extravagant of form and colour, Nature but rarely descends to mere freakishness. When she does, like Medea, she generally devours her own children. Yet now and again so wide is the versatility of Nature, bizarre forms of life appear and persist. Of such forms none is more curious than the well-named Bizzarria Orange, which tradition maintains is the curious result which emanated from the hands of a Florentine gardener in 1644 as a result of the defective grafting of a Citron (Citrus Medica) with a Sour Orange (Citrus Aurantium). The monstrous progeny of this or some other unhappy union has engaged the attention of botanists during the last three centuries, and needless to say, many "explanations" have been put forward to account for its peculiarities. Some have thought that the Bizzarria Orange is a true hybrid, but more recently it has been put in the category of plant chimeras. Mr. Tyôzaburô Tanaka of the Phytotechnical Institute of the Miyazaki College of Agriculture (Japan) has, we think now solved the problem by showing* that this curious Orange is indeed a chimera, albeit a very peculiar one. His studies were carried out at La Mortola, where a dwarf Bizzarria tree grows. It is about a yard high and bears three kinds of foliage. The leaves on some branches are thick, deep green and winged—quite like those of the Sour Orange. Those borne on other branches are lighter, thinner, serrated and unwinged: these are Citron leaves. The third set—Bizzarria leaves—resemble those of the Sour Orange, but are irregular in outline, variable-shaped, with every form ranging from linear to oval, and sometimes as though to emphasise their bizarreness, somewhat variegated. The profound injunction "by their fruits ye shall know them," generally so sure a guidance to the systematist, breaks down completely in the case of this vegetable freak. For, as shown in Fig. 121A (p. 243), reproduced by the courtesy of Professor Punnett, Editor of the *Journal of Genetics*, the fruits of the Bizzarria are, if not so varied as the leaves, by no means uniform in appearance. The fruit, indeed, partakes of both progenitors. Half of it is Sour Orange and half Citron. The Citron part is very rough, longitudinally streaked with irregular striations, generally of yellow colour; the Sour Orange part, on the other hand, has an even surface and of green colour. But even in the Citron part green patches occur. The explanation given by the author fits these curious facts and appears to us to be conclusive. The Bizzarria Orange is a chimera produced, no doubt, from a bud formed at the union of a stock of Sour Orange and a scion of Citron. It is, moreover, a chimera made up of a core of Citron and a covering of Sour Orange. That is to say, it is a periclinal chimera; all the body, as it were, is Citron, and all the skin Sour Orange. As in other similar cases, Cytisus Adamii, for example, an uneasy relation exists between the two components. Ordinarily, these strange bedfellows make the best of their linked fate, and like the lion with the lamb, the Sour Orange lies down with the Citron. But occasionally individuality is asserted. In some buds the confined Citron finds itself, or makes itself, free of the Sour Orange covering, and lo! it develops into a Citron branch. More rarely the bud is formed or comes to consist solely of "skin"; that is to say, of sour Orange tissue, and that bud gives a branch typical of the Sour Orange. Finally, in the fruit the confined Citron—from some cause still unexplained—adopts the method of infiltration. Strands of its tissues grow in among the tissues of Sour Orange and appear on the surface. In the lower half of the fruit illustrated in Fig. 121, this has taken place to such a large extent that the complexion there is that of the evader. In the upper part this penetration is so slight that half looks like Sour Orange pure. The invasion of Citron tissue into sour Orange rind is well shown in the section of the fruit. Nowhere in Nature may a better example be found of the intercellular struggle for existence which probably takes place between all the component cells of a tissue from which possibly arises all that fair harmony which seems to accompany normal development.

Proposed Plant Collecting Expedition in Western British Columbia.—Following the suggestion that has already appeared in our columns, the Council of the Royal Horticultural Society has decided to promote an expedition to Western British Columbia for the purpose of obtaining seeds and specimens of the many desirable garden plants, especially alpines, this region is assumed to contain. Much of the coastal, mountainous region of British Columbia is practically unexplored botanically and should yield interesting and useful plants that will be quite hardy in this country. A Committee has been set up to make the necessary arrangements, and it has been decided to divide the cost of the expedition into a number of £20 shares, so that others besides the Society who wish to do so, may participate in the results of the expedition. Applications for the available shares should be made to the Director, Royal Horticultural Society's Gardens, Wisley, Ripley, Surrey, before Monday, April 25, as arrangements must be completed quickly.

Flowering Plants of South Africa.—No. 24 of Vol. 6 of *The Flowering Plants of South Africa* contains illustrations and descriptions of Protea cynaroides, Disa picta, Gladiolus hirsutus, Disa lacera, Watsonia Fourcadei, Disperis Tysonii, Gladiolus salmoneus, Watsonia tabularis, Lapeyrousia fissifolia, and Gladiolus Watsonius. Protea cynaroides, t. 231, is the largest of all the South African species and is the only known species which has long-petioled leaves. It forms a bush up to 2m. high, and is sometimes acaulescent. Disa picta, t. 232, is a rare species of which not more than five collections are recorded. The hooded flowers are marked with violet, and have a brownish keel. Gladiolus hirsutus, t. 233, is an old plant in gardens, and was illustrated in *Icones Plantarum Rariorum* about 1790; the flowers are one to six in a lax spike, and are pinky in colour. Disa lacera, t. 234, is another very small-flowered Orchid known as the Caledon Blue Disa; it is probably a form of Disa lacera which Rolfe included in Herschelia venusta. Watsonia Fourcadei, t. 235, is a new species with a spike, nearly five feet high, of very beautiful salmon-pink or coral-red tubular flowers. Disperis Tysonii, t. 236, is another small, terrestrial Orchid with a hooded dorsal sepal and wide side sepals coloured purplish-mauve. Gladiolus salmoneus, t. 237, was named by Baker from plants sent to Kew in 1883; the perianth segments are waved at the margins and are a shade of salmon-pink. The spike may contain so many as twenty flowers. Watsonia tabularis, t. 238, is a very handsome Iridaceous plant found on the Lower Plateau of Table Mountain; the long spike bears numerous showy flowers, the exterior of the outer segments being reddish-scarlet and the interior with mauvy suffusion. The flower stem, as shown in the illustration, is violet-purple. Lapeyrousia fissifolia, t. 239, is another Iridaceous plant forming an erect, simple, sometimes branched, glabrous herb, and bears a spike of few or many flowers which have pink tubes and pale purple segments. Gladiolus Watsonius, t. 240, is an extremely graceful plant, usually bearing one to three bright red flowers; it is the Antholyza revoluta of Baker's *Flora capensis*, and known commonly as the "Red Africander."

American Iris Society.—At the meeting of the Directors of the American Iris Society, held in New York, the medal of the Garden Club of America, which had been offered to the Society for the best seedling Iris introduced in 1923, was officially awarded to the variety Morning Splendor, raised by J. Marion Shull, of Washington, D.C., and no other award was made for 1923 seedlings or for 1924 seedlings. An appropriation was voted to the New York Botanical Garden for the purpose of instituting research work in Iris breeding between species, this work to be carried out by students working under the direction of Dr. A. B. Stout. An appropriation was also made to the Brooklyn Botanical Garden to further the work in investigation of Japanese Iris begun some years ago by Dr. George M. Reed. It was announced that a new Iris Test Garden was being started at the Missouri Botanical Garden, where already about nine hundred varieties have been assembled. It is expected that special work on colour classification will be undertaken there in the future. Announcement was also made of the special study of Dwarf Iris to be begun this year at the Cornell Test Garden under the direction of Dr. A. H. Wright. The lantern slides owned by the society are now in the custody of Mrs. Silas B. Water, Edgecliff Point, Walnut Hill, Cincinnati Ohio, and they may be rented by Garden Clubs and other horticultural organisations. Arrangements were made to hold the annual meeting of the Society at the Brooklyn Botanic Garden, on Friday, June 3, but subject to change according to season. After the business meeting, the Irises at the Brooklyn Botanic Garden will be inspected and the research work explained to the members. After lunch, an automobile trip will be made to several famous Iris collections on Long Island.

---

* *Journal of Genetics*, Vol. 18, No. 1. March, 1927.

Arsenic on Imported American Apples.—In reply to a letter asking whether anything is now being done by American growers to safeguard the consumer of exported Apples, Mr. Frank Wyatt, Secretary of the London Vegetarian Society, has received the following letter from the Department of Agriculture at Washington. "The American fruit-producing industry is fully alive to the necessity for eliminating dangerous quantities of spray residue on fruit, and is working whole-heartedly with both Federal and State Governmental agencies who are concerned with this problem. Intensive studies, designed to control the spray residue on fruit, were made during the last producing season by both Governmental and commercial agencies. While a great improvement in the condition of the crop was brought about, it was found that in certain areas of low rainfall, even the most careful restriction in the application of sprays, followed by brushing and wiping the fruit after harvest, left excessive quantities of residue on the fruit. This demonstrated clearly the necessity for employing other methods of removing spray residues than by brushing or wiping. Experimental work conducted last season in a number of localities where spray residue may be excessive at the time of harvest has shown that by the employment of certain dipping methods the fruit may be cleansed to a point where the amount of residue will be well below the recognised tolerance. Steps are now being taken to advise the fruit-producing industry, in those regions where fruit cleansing is essential, of the equipment and processes necessary in the application of these different methods, and every thing possible will be done to bring about the installation of this equipment before the next packing season. It is expected that as a result of the combined effort of the fruit-producing industry and interested Governmental agencies, none of the fruit exported to Great Britain during the coming season will bear objectionable quantities of spray residue."

Conference of Bulb Growers and Dealers.—Under the auspices of the Horticultural Trades Association a National Bulb Conference of bulb growers and bulb dealers will be held at the London Central Y.M.C.A. (junction of Tottenham Court Road and Great Russell Street, London, W.1.), on Wednesday, April 13, at 2.30 p.m. Those who attend will be asked to consider: (1) whether or not it is in the interests of the British Bulb Industry to make application under Section 1 (3) of the Merchandise Marks Act, 1926, for the exclusion of bulbs from the operation of this Act, and to arrange accordingly; and (2) the action of the Office of Works in accepting and advertising a gift of Dutch bulbs for planting in the Royal parks.

Birmingham Botanic Society's Show Postponed.—We regret to learn that in view of the very short time available for arranging a show this year, the Organising Committee has decided to postpone until the spring of 1928 the show it had proposed to hold in the Edgbaston Botanic Gardens early in June, 1927.

Centenary of Heidelberg Public Gardens.—Heidelberg is celebrating this year the centenary of the first public gardens formed in the town, which were laid out in 1827 on the site of the old moat. It was then that the finest avenue in the town, now the Leopoldstrasse, was planted with Horse Chestnuts. Since then, the town has acquired many other fine parks and gardens; the Handschuhsheimer Park, until 1916 in private hands, contains a celebrated specimen of Ginkgo biloba, and a Tulip Tree twenty-five metres in height. For supplying plants to the parks there is a municipal nursery with twelve large greenhouses and about four hundred frames.

Mr. James Friend.—After faithful and much appreciated services with the Glyn family, extending over a period of nearly fifty years, Mr. James Friend, whose portrait we have pleasure in reproducing, retired on March 25, last from the management of the estate and gardens at Albury Hall, Hertfordshire, the seat of the late Maurice Glyn, Esq. Mr. Friend had considerable experience in gardening before he was appointed general foreman at Iwerne Minster, Blandford, the seat of Lord Wolverton, which marked the commencement of his forty-six years' service with the Glyn family. He was born at Felbridge, Surrey, and commenced his horticultural career at Chartham Park, in the same county; his next appointment was as journeyman at Croxteth Park. On leaving Croxteth Park he obtained an appointment through Messrs. James Veitch and Sons, of Chelsea, at Luton Hoo, and from Luton Hoo he was appointed foreman at Quorn Lodge, Loughborough. He again returned to Messrs. James Veitch and Sons, Chelsea, and they recommended him for the post of general foreman at Iwerne Minster, where he remained for eight years, when he was offered and accepted the post of gardener and bailiff at Rooksnest Park, Godstone, the seat of the Hon. Pasco Glyn, brother of Lord Wolverton. Mr. Friend remained at Rooksnest for over twenty years, and on the death of the Hon. Pasco Glyn, his son, Mr. Maurice Glyn, bought Albury Hall, Hertfordshire, and entrusted Mr. Friend with the whole management of the estate. Mr. Friend has won many prizes for Chrysanthemums, fruits and vegetables in competition with many well-known growers at the shows held in the Aquarium, Westminster, at the Crystal Palace, etc. Those who know Mr. Friend personally realise that he is a man of kindly nature, and he is greatly esteemed by the numerous young gardeners who have passed under his charge. He is shortly taking up his residence at Stansted, Essex, where, after much hard work and valuable service, all will wish him good health and happiness to enjoy his well-earned rest.

MR. JAMES FRIEND.

Old-fashioned Plants.—A novel exhibition is being held just now in the Botanic Garden in Dresden—an exhibition of old-world room-plants. The collection has been brought together by the Director of the Gardens, Professor Dr. Tobler, and has been visited by a number of people, many of whom were surprised to see again old, long-forgotten favourites.

Horticultural Education in Belgium.—Each year the Belgian Ministry of Agriculture organises free lectures and courses of study on the subjects of fruit cultivation, market gardening, and horticulture. The requests for such classes are made to the Ministry by the local councils, or societies, who are required to provide, free, halls for the lectures, and also gardens for demonstration suitably cultivated and planted with fruit trees. The Ministry also frequently assists in the expenses connected with the organisation of horticultural and agricultural exhibitions if the authorities are satisfied that such assistance is needed and will be usefully applied.

Legacy for a Gardener.—The late Sir Benjamin Faudel-Phillips, Bt., of Balls Park, Hertford, who died on January 11, left an annuity of £104 and a legacy of £100 to Mr. Frederick Fitch, his gardener, if still in his service, and an annuity of £52 to his wife, should she survive him. The gardens at Balls Park were maintained by Mr. Fitch in a condition of great perfection.

Worshipful Company of Gardeners.—Mr. Ernest Arthur Ebblewhite has completed twenty-five years' uninterrupted service as Clerk to the Worshipful Company of Gardeners, and the Court has appointed a Committee of which the Right Hon. The Lord Mayor of London is Hon. Treasurer, to raise subscriptions for presenting Mr. Ebblewhite with a testimonial in appreciation of his unremitting zeal and energy in the best interests of the Company and its members.

Canadian Apple Exports.—The total exports of Apples from Canada this season, up to March 3. amounted to 605,895 barrels, 9,877 half-barrels, and 840,479 boxes, as compared with 1,085,968 barrels, 13,828 half-barrels, and 628,149 boxes during the same period last year.

Daffodil Conference at Westminster.—On April 13, the second day of the London Daffodil Show, a Daffodil Conference will be held at the Royal Horticultural Hall, commencing at 11.30 a.m., when Mr. P. D. Williams, and Mr. P. R. Barr, will deliver short addresses. Mr. P. R. Barr will discuss "Miniature Daffodils and Their Place in the Garden," and illustrate his remarks by plants of the smaller species and varieties.

The Flower and Plant Industry in England and Wales.—According to the Ministry of Agriculture, the value of the flowers, bedding plants, decorative plants, etc., grown for market in England and Wales during 1925 was £1,750,000, representing a value of £400,000 for flowers grown in the open and £1,350,000 for bedding plants, flowers, etc., grown under glass. Of the out-door flowers, the most important are Daffodils and Narcissi, which account for about 1,400 acres. Tulips come next with 300 acres, followed by Violets with 150 acres. Other flowers represent a total of 3,400 acres. Most of the Daffodils and Narcissi are grown in Lincolnshire, Cornwall, Norfolk, Essex, Middlesex and West Sussex. Tulips are grown principally in Lincolnshire and Norfolk, whilst Devonshire and Cornwall furnish the bulk of the Violets. The total acreage of flowers grown in the open is about 5,250.

Preparing Herbarium Specimens.—Mr. E. M. Marsden-Jones and Mr. W. B. Turrill, at the Linnean Society's recent meeting, gave an account of an improved herbarium method for geneticists, ecologists and taxonomists. The method demonstrated originated, so far as the exhibitors were concerned, with Professor W. G. Craib, of Aberdeen. It has been used at Kew for some years and, with minor modifications, is capable of very wide application. With the hope that ecologists and geneticists especially would recognise the necessity of keeping as records the actual specimens with which they have worked, some examples of the results of the method were submitted. Briefly, the process is the sticking down of the specimens in a living condition. The best results have been obtained with paste, not with gum or glue, "Gloy" being the best so far tested. A sheet of paper or card is brushed over with a thin layer of the paste, and the specimens placed on this. They are dabbed down and excess of paste wiped away. The sheet is then placed in a press and considerable pressure applied. It is advisable to look at the preparations within a few hours and remove any excess paste. After a few days the specimens are dried; they retain their shape, and sometimes their colour, indefinitely. The most useful results are obtained with dissected flowers and inflorescences; all parts of the flower may be shown with upper and lower surfaces visible, and sections can also be stuck down for drying in position. With some plants, pressure through blotting paper with a hot iron gives excellent results. For taxonomy the need for boiling and dissecting is practically eliminated when series like those shown are available. In such a family as Zingiberaceae and in such a genus as Iris, without a method like this, herbarium work is largely hopeless. In genetical studies it has been found most valuable, not only in making ordinary herbarium specimens of entire plants for future reference, but also in having series showing various floral and other organs on cards. In work on Geum, herbarium sheets of the distinct forms resulting from the crossing of the British species were prepared, and on cards complete sets of the petals and calyces of all plants raised were kept. A herbarium prepared in this way would become more and more valuable, for no experimental ground is large enough to keep growing all the plants which have been worked with; but with the above plan a record is preserved. The importance of an ecological herbarium would also be enhanced by adoption of the method or a modification of it. Dr. Rendle referred to the specimens of Iris prepared by the late Mr. Dykes, and Mr. H. N. Ridley mentioned Mr. Maw's Crocus specimens as comparable with the exhibits before the meeting, and touched upon the limitations of the method and the difficulties likely to be encountered under the usual conditions of collecting in the tropics.

Ashridge Park.—Ashridge Park, near Berkhamstead, an open space in the Chiltern Hills, lately acquired for the public by the National Trust, will be open from now onwards on Saturdays, Sundays, and Bank Holidays. The portions of the park included in the purchase are well-wooded; outside the park walls there are beautiful glades of Beech and a most interesting walk to Beacon Hill which commands distant views of the countryside.

New Director of Cologne Municipal Gardens.—We referred in our issue of January 29 last (p. 75) to the retirement of Herr Encke, the Director of the Municipal Parks and Gardens of Cologne. We now learn that his successor is Herr Josef Giesen, the Director of Cultivation in the municipality. Herr Giesen is thirty-nine years old; he entered the service of the Parks Department in 1919, and has held various positions of increasing responsibility. He will have the practical direction of the large area of new parks and gardens which are to take the place of the old fortifications round the city. Another official who will also be closely concerned with the lay-out of these new open spaces is Herr Theo. Nussbaum, who is at the head of the planning and designing department of the municipality. To him will fall the responsibility of designing the new parks so as to make the best use of the available ground. Herr Nussbaum is forty-one, and has been in the municipal service since 1910. He has won many prizes for garden designs, and among other works for which his plans have been accepted may be mentioned the stadium grounds at Elberfeld, Oberhausen, and Wiesdorf, and the cemeteries at Buer and Celle.

Appointments for the Ensuing Week.—Monday, April 11: United Horticultural Benefit and Provident Society's meeting; Guildford and District Gardeners' Society's meeting. Tuesday, April 12: Royal Horticultural Society's Daffodil Show (two days); Jersey Gardeners' Society's meeting. Wednesday, April 13: Sheffield Chrysanthemum Society's meeting. Thursday, April 14: Tewkesbury and District Daffodil and Spring Flower Society's show; Ipswich Gardeners' Association's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Hardiness of Greenhouse Plants.*—As the question of the hardiness of many plants usually treated as greenhouse ones appears to be exciting some attention, and as several plants of that description have been for some years planted out here with a view of testing their hardiness, the following account of the result may be interesting. It should be observed that this place, lying on the shores of Morecombe Bay, shares in the mild climate of the west of England; but being considerably to the north (in latitude 54°11′), and only a few miles distant from the lake mountains, which rise to the height of 3,000 feet, it is liable to greater cold than usually occurs further to the south. *Australian and New Zealand Plants.*—Leptospermum grandiflorum has been planted out many years, and always flowers abundantly. It appears as hardy as any of the common evergreens. Leptospermum ambiguum and L. lanigerum have also been out two winters against a wall, and are quite safe. The latter, especially, is very vigorous, and seems as hardy as L. grandiflorum. L. scoparium, tried a few years ago, was killed; Grevillea rosmarinifolia is perfectly hardy, and is now in flower. Callistemon lanceolatus, Plagianthus divaricatus, Tasmannia aromatica, Veronica speciosa, have also been tried successfully against a wall. The Tasmannia usually flowers abundantly. Clianthus puniceus against a wall is now coming plentifully into flower. Acacia affinis, with a stem one foot in circumference, is now covered with blossom; it is planted out in a sheltered situation. *Other Plants of Doubtful Hardiness.*—Habrothamnus elegans, corymbosus, and fascicularis, against a wall, are uninjured. Iochroma tubulosum, under precisely the same circumstances, was killed. The following plants appear also to be quite hardy. Quercus glabra (very handsome); Tetranthera *Sieboldi ?* (do.); Limonia laureola; Illicium floridanum; Ill. religiosum (both of these flower); Garrya Macfadgeana (against a wall); Myrsine africana, M. *Urvillii ?* Euonymus fimbriatus (against a wall); Eriobotrya japonica (do.). *B., Holkar Hall, Milnthorpe, April 7. Gard. Chron., April 10, 1852.*

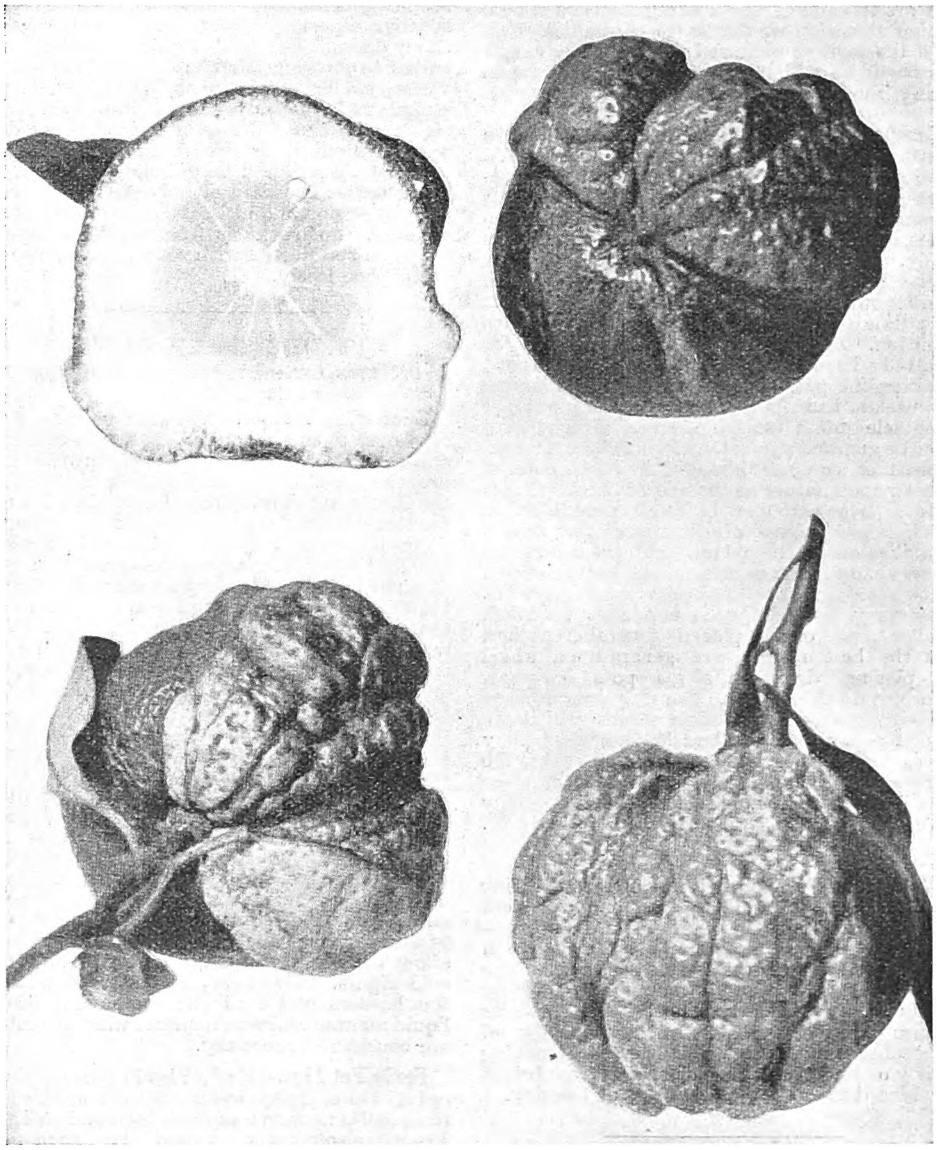


FIG. 121A.—THE BIZZARRIA ORANGE.

Upper: left, cross section; right, apical view. Lower: left, basal view; right, side view showing the typical narrow, boat-shaped leaves.

(see p. 241).

Publication Received.—*The Field Club Flora of The Lothians,* published by the Botanical Committee of Edinburgh Natural History Society, 13, Atholl Crescent, Edinburgh.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Dendrobiums.—In most cases, the species and numerous hybrids of the Dendrobium nobile section commence to make new growth immediately they pass out of flower, and develop new roots from the bases of the young growths when the latter are a few inches high. Those that are in need of new rooting material should receive attention at this stage of their growth, for if the roots are allowed to attain any length there will be a danger of many being broken during the operation of repotting.

Compost.—Dendrobiums root freely in a mixture of equal parts Osmunda fibre, A.1. fibre, and fresh Sphagnum-moss, cut into somewhat small portions. Ordinary flower pots or pans, without side-holes, are suitable receptacles, and the material should be placed in them firmly. All the plants will not be ready for receiving fresh rooting-material at one time, therefore it is advisable to examine the stock from time to time, until all have received this attention. Strong, healthy specimens may be repotted without much disturbance at the roots, breaking the pot or pan if necessary, removing any useless back bulbs, and providing another receptacle of a suitable size. Over-potting must be guarded against, as Dendrobiums resent a mass of compost about their roots, even of such an open nature as the one advised. Plants with a large number of back pseudo-bulbs, which show signs of deterioration, should be shaken out of the old material, the dead roots cut away, and the number of back bulbs reduced to two or three behind each growing point. They may then be accommodated in much smaller pots or be placed several together, but the best results are generally attained by placing them in single pots or pans, according to the variety. Large, strong growers are best grown on the plant stages, whilst the smaller growers will do best in pans which may be suspended from the roof-rafters. At the present time there is every appearance of these Orchids again being much sought after, especially D. nobile nobilius Sir F. Moore and D. Thwaitesiae.

Watering.—For some time after repotting them, the roots should be given only sufficient water to maintain the plant in a plump condition, as the young growths and roots will decay if water is given in excess; when the plants are well-rooted the supply of moisture should be increased gradually. Dendrobiums require considerable warmth and plenty of atmospheric moisture whilst they are making their growth, and only need shading from bright sunshine during the hottest part of the day.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Peas.—Wrinkled or Marrowfat varieties may be sown in the open, on deeply trenched, well-manured ground. Further sowings should be made about every ten days until June in order to maintain an unbroken supply throughout the season. Do not sow thickly, or mildew will be troublesome later on the crowded foliage. Double rows, four feet six inches apart, and not less than two inches between the seeds, is a fairly safe distance, while more space should be allowed for very strong-growing varieties. Early attention should be given to the staking of earlier-sown Peas that may now require it. Stir the soil in the rows with the Dutch hoe on frequent occasions.

Parsley.—Seeds of this useful herb may now be sown out-of-doors. The ground for Parsley should be in good heart and contain a fair amount of humus, or the foliage will be poor. Parsley may be planted as an edging to a border or alongside a path. Keep the seedlings well-dusted with old soot, or slugs will destroy them. When large enough, thin the seedlings to about four inches apart.

Carrots.—The main sowing of Carrots may now be made on deeply-worked, fertile ground that has not been manured recently. A fine tilth is very important for a seed-bed, and a liberal dressing of burnt garden refuse scattered over the surface and well raked in before sowing, will prove very beneficial. Make the drills about one inch deep, and allow a distance of fifteen inches between the rows. Good coloured varieties of the Intermediate section generally prove most serviceable for this sowing, especially where the soil is a deep, sandy loam. For soils which are not well suited to growing Carrots, choose stump-rooted varieties. To obtain roots for exhibition purposes, make holes with an iron bar, about eighteen inches to twenty-four inches deep, and fill them firmly with a finely-sifted, sandy compost, to which a little bone-meal, soot and burnt refuse has been added. Sow a few seeds at each station and ultimately thin to one strong seedling. So soon as the seedlings appear, keep the bed dusted with old soot, and use the Dutch hoe freely.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Successional Vines.—Vines in various stages of development require constant attention, and each operation should be performed at the proper time. After disbudding is finished, the shoots will develop rapidly, and in a few days the more forward ones may be divested of superfluous bunches, stopped and tied in position. The last operation should be done with great care; the shoots of some vines are more tractable than others when bending them, but in all cases the pressure to bring the shoots down to the wire should be very slight; the principal object is to guard against the shoots touching the glass. Remove all superfluous bunches, if not before, immediately after, the berries are set, and utilise the scissors for thinning early. The temperature of the house in which Muscats are coming into bloom may be 68° to 70° at night, and up to 85° by day, with a rather drier atmosphere and free circulation of air on all favourable occasions. Tap the vines daily to disperse the pollen; draw a brush over free-setting varieties and afterwards use the brush on the Muscat bunches as well as shake the pollen on it about the house. After the bunches are well set, syringe the vinery once and gradually allow the night temperature to fall to 65° on cold nights. Give every attention to watering the borders and feed the roots with diluted liquid manure and vine manures when stimulants are considered necessary.

Early Pot Figs.—Early Figs in pots are developing white, fleshy roots over the sides of the receptacles in search of fresh food and moisture. Their development should be encouraged by spreading sods of turf on the rims and well over the sides of the pots. This attention does not justify neglect of the roots within the pots, which should be given warm, diluted liquid manure, and the turf and plunging materials kept constantly moist. Some of the earliest fruits will soon begin to swell. Up to this stage frequent syringings and plenty of atmospheric moisture are very necessary, but when the fruits are ripening reduce the amount of syringing, and keep the atmosphere slightly drier. Keep all gross shoots pinched, and remove weak or crowded growths as they appear. By these means, and a temperature ranging from 60° to 65° at night, with a little air, and 70° to 80° on bright days, the fruits will attain their fullest size and ripen quickly; the young shoots with small fruits will also get well advanced for successional fruiting.

Strawberries.—Continue to introduce fresh batches of plants to the forcing house as the earlier plants are cleared out. Give attention to thinning the trusses early, and continue to syringe the plants freely. The roots will require to be fed with diluted liquid manure daily. To secure berries of the finest flavour, the plants should have plenty of air and a cooler and drier atmosphere for a few days after they are coloured.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Humea elegans.—The earliest plants of Humea elegans should be ready for placing in the pots in which they will flower. I am not in favour of large receptacles for these plants; pots seven inches in diameter are the largest used in these gardens, the roots being stimulated with frequent light applications of liquid manure. Humeas resent disturbance at the roots, and in repotting them extra care must be exercised; on the contrary, failures may be traced to allowing the young plants to become pot bound before placing them in their flowering pots. If the roots are allowed to become an entangled mass, they are some time before they become established in the new compost, and if they are over-watered under these conditions the foliage will turn sickly, and the plants fail to grow satisfactorily. This plant requires cool treatment at all stages of its growth, and any attempt to hasten its development by the use of fire-heat would probably end in failure. Green and white fly are sometimes troublesome but these may be kept in check by the use of Cyanogas, used strictly in accordance with the directions given by the makers.

Browallia speciosa major.—Plants raised from seeds sown early in the year, should be kept growing. Prick them off into pots or small boxes, and when they are large enough, transfer them singly to small pots. Browallias enjoy a light, rich compost to which may be added some old Mushroom-bed manure or dry cow manure. Keep the young plants growing in a genial atmosphere, but when they are established in pots they should be accustomed to cooler conditions.

Begonia Weltoniensis and B. gracilis.—These useful summer and late autumn-flowering Begonias are still worthy of cultivation. Some of the old plants may be taken out of their receptacles, the old soil shaken from the roots and the plants repotted. They should make good flowering specimens during the late summer, while young stock raised from cuttings now will make good flowering plants for the autumn. These Begonias are very easily cultivated; although they will succeed under cool greenhouse treatment, much better results are obtained when they are started into growth in a somewhat humid atmosphere and gradually accustomed to cooler conditions.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Raising Hardy Perennials from Seeds.—Many herbaceous perennials and choice rock garden plants are easily raised from seeds, and the present is a suitable time to sow them, as the bulk of seed-sowing for ordinary bedding purposes is over, and by the time the seedlings of the herbaceous subjects are ready to handle there should be plenty of frame room available. The seeds should be sown in pots, seed-pans or boxes, according to the quantities of plants required. Germinate them in a cool house or cold frame. Keep the soil shaded until germination takes place, and when the seedlings are large enough to handle, prick them off into boxes, and later, in the nursery or reserve garden. Many plants, such as Delphiniums, will, if very well grown, make a good show next year.

Transplanting Hollies and Other Evergreens.—Many evergreens, such as Hollies and evergreen Oaks, cannot be transplanted successfully unless it is done at the proper time. Early autumn, while the ground is still warm, is suitable, but, on the whole, the best time is during April and early May, when the plants are just starting to grow. If the plants are of considerable size, they should have been prepared previously at the roots for transplanting. Evergreens should be planted firmly; in fact, firm planting is one of the secrets in the successful transplanting of most woody subjects. Give the roots a copious watering, and see that they do not suffer for lack of moisture in hot summer weather. Large evergreens should be partially cut back when they are transplanted.

Begonias.—Plants of the tuberous-rooted and semperflorens sections raised from seeds sown early in the year should be ready for planting out in cold frames. The beds should be prepared carefully, adding plenty of well-decayed leaf-soil or old Mushroom bed manure to the soil. In this compost they should root and grow freely, and lift with a good ball of soil and roots at planting out time.

Salvia splendens and Verbena venosa.—These two flowers may be grown in the way recommended for the Begonias as may any plant that has a good fibrous root system. Grown in frames, they require much less attention as regards watering. When the plants are first put in the frames, the latter should be kept fairly close and moist and well-covered at night to conserve as much sun warmth as possible.

Thinning Herbaceous Perennials.—Many herbaceous plants, such as Asters, Heleniums, Helianthus and Phloxes, should have their shoots well thinned now. This will result in much finer flowers, and the plants usually last longer in bloom, producing branches or side-shoots down to the ground. In the case of Phloxes, the young shoots may be used as cuttings, dibbling them into cold frames; if planted out when rooted, they will flower during the autumn.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Richardias.—Arum Lilies are usually in great demand for Easter, and the development of the spathes may be hastened by keeping the house a few degrees warmer or, if too forward, the plants should be shaded or removed to a shady north house from which frost can be excluded. Under these conditions the flowers will last in good condition for a considerable time. Aphis is one of the worst enemies of this plant, and a close watch should be kept for the first appearance of fly, and measures taken to destroy the pest, either by fumigating or spraying the plants with an insecticide. In the milder parts of the country these plants may be grown successfully as aquatics, and if given the correct depth of water to ensure that the crowns are well below the surface in times of hard frost, they will last for a considerable number of years without further protection; a depth of eighteen inches to two feet of water is suitable, and they should be placed in position some time during May.

Lawns.—Grass is beginning to grow freely and lawns will need immediate attention. Wormcasts should be brushed level and the lawn rolled in preparation for mowing. Where the surface of the lawn was dressed with sea-sand late in the autumn, the smaller particles will now be washed well down to the roots of the grasses, and any pebbles or shells should be swept up and removed. This dressing is recommended for bowling greens, where a fine, close sward is essential, and where smoothness of surface is one of the principal considerations.

Vineries.—Late vines are growing rapidly, and where the rods have been allowed to hang free from the trellis, or in the case of young canes that have been bent down to encourage the more equal distributions of sap, they should be trained in their proper positions. Care is required in doing this, as the young buds are very brittle and easily rubbed off, and although an odd one in the case of old spurs is no great loss, it is often the best or most forward bud that suffers injury. When the rods have been tied in position the superfluous shoots may be removed leaving only sufficient to furnish the available space, after examining them closely to make certain that the embryo bunch is showing. It is a wise precaution to leave two shoots for a time, as until they are finally attached to the laterals, they are liable to be snapped off at the base, and should the second one not be required, it is easily removed at a later stage when it is evident that the better one is secure. More moisture is now necessary, and the vinery should be damped thoroughly on sunny, warm days. Examine the border, and if the soil is on the dry side, soak it well with tepid water.

Sweet Peas.—Plants of Sweet Peas raised under glass from a sowing made in January are filling their pots with roots, and if properly hardened off, may be planted in their summer quarters. If the trenches were made ready in good time, the soil should be consolidated, and if ample supplies of manure, etc., were used, the trench should now only require a light stirring on the surface to ensure ideal planting conditions. For convenience in cutting, it is recommended to plant in rows or blocks of one variety or colour, but for garden effect mixed rows are charming, and it is not yet too late to sow Sweet Peas for this purpose in the open. So soon as the plants raised under glass are put out, they should be given the protection and support afforded by placing short, twiggy branches of Spruce or other suitable trees around them. A close watch must be kept for slugs, which will soon damage tender plants at this season of the year.

Cabbages.—The autumn-planted Cabbages are growing and hearting rapidly, and their development may be greatly assisted by an application of sulphate of ammonia between the rows, and stirring the surface soil. The application of this fertiliser is sometimes recommended earlier in the season, but when applied too early, it has a tendency to encourage excessive leaf-growth, at the expense of early hearting. So soon as the plants show signs of "bowing," or hearting, is the most effective time, and when the sulphate is applied just before rain the results are soon apparent in the darker green of the foliage and increased vigour of the crop. Plants raised from autumn sowings should be transplanted to form a succession, and seedlings from spring sowings thinned, and the soil about them hoed frequently.

MY SMALL GARDEN.

When taking over the site of my small garden, the only vegetation was an abundance of weeds and a few old-established fruit trees. These Pear, Apple and Greengage trees form a distinct feature, and provide a charm by reason of the decorative effect they produce at all seasons, and especially when in flower. The Greengage seen in the left front of the photograph (Fig. 122) produced ten pounds of fruit last year—a most fortunate occurrence, apparently, as I have been told this tree fruits only once in seven years!

In laying-out my small garden, I aimed at securing an idea of spaciousness combined with a minimum amount of labour in up-keep. Keeping this idea in mind, I devoted considerable space to lawn, with a broad herbaceous border all round, edged with a brick path. To provide a screen by the road way, I planted evergreen and flowering trees and shrubs, such as Cupressus macrocarpa, Laburnum, Lilac and Robinia; these are now thriving and bid fair to fulfil their purpose.

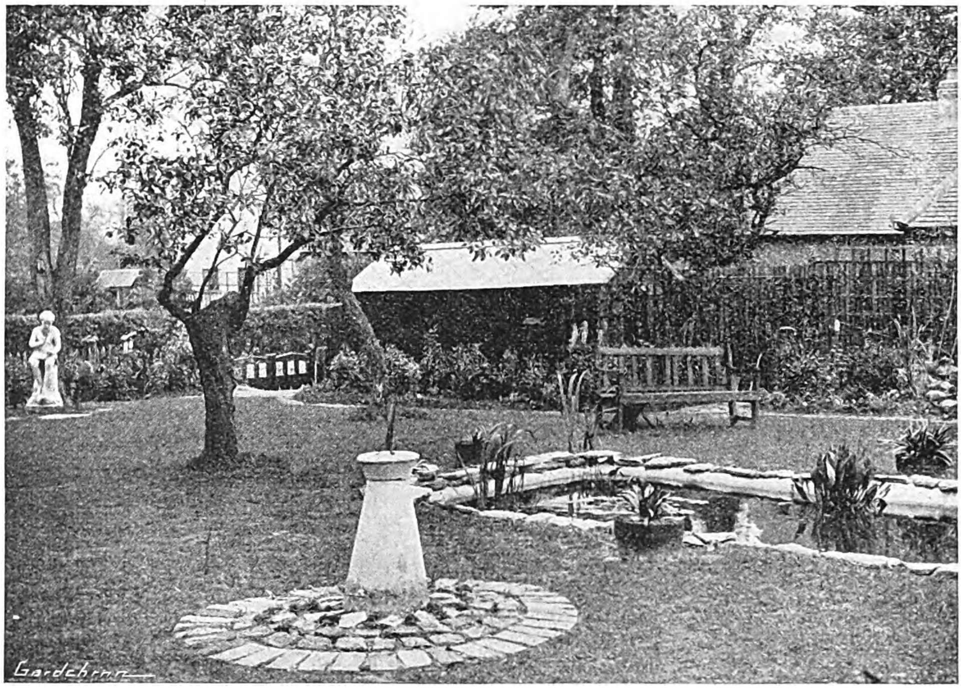


FIG. 122.—THE GARDEN AT PEAR TREE COTTAGE, EWELL, SURREY.

In the flower borders I grow Michaelmas Daisies in variety, hardy Chrysanthemums, Hollyhocks, Delphiniums, Lupins, Pyrethrums, giant Poppies, many varieties of Phlox and Antirrhinums, with borderings of Pinks, Violas and Thrift.

A little formal Lily pond was made and the soil excavated in its making formed the base of the rock garden, a portion of which is seen in the photograph. A red Nymphaea, Japanese Irises, goldfish and carp flourish in the pool, while in the interstices of the stone edging are mosses and Saxifrages. By the margin of the pool are tubs of Agapanthus, three blue and one white.

In the grass around the fruit trees, Snowdrops, Crocuses and Primroses bloom in due season and are very effective. Although not shown in the photograph, there is a bed of Roses near the sitting-room window, and Tulips and Violas are planted between the Roses.

Altogether—trees, lawn, flowers, paved paths and sundial provide a beautiful, interesting and peaceful garden. *(Mrs.) J. M. Wilson, Pear Tree Cottage, Ewell.*

ORCHID NOTES AND GLEANINGS.

THE NIVEUM GROUP OF CYPRIPEDIUMS.

The four species—C. niveum, C. bellatulum, C. concolor and C. Godefroyae, form a very distinct and beautiful section of the genus Cypripedium, and their cultivation presents just that spice of difficulty which is so fascinating to the ardent grower.

C. concolor, introduced in 1865, was the first of the group to reach this country, and this species played a part in the early history of Orchid hybridisation, for Cypripedium tessellatum (C. concolor × C. barbatum) and C. Marshallianum (C. venustum × C. concolor) both flowered by Messrs. James Veitch and Sons in 1875, were amongst the first hybrid Cypripediums raised by Seden.

Several variations of C. concolor have occurred, notably C. c. chlorophyllum, with leaves devoid of the typical marbling ; C. c. Regneiri, the flowers of which were yellow with a purple blotch on the sepals ; and C. c. sulphurinum, which was possibly an albino variety, for the flowers are described as sulphur with two deep yellow blotches. It is, however, very probable that the only forms now in cultivation are the typical C. concolor and C. c. Sanderae.

C. niveum, first imported by Messrs. Veitch in 1868, has shown singularly little variation, but improvements on the type in size and substance have appeared from time to time. A meritorious variety appeared amongst a batch of imported plants in the Bradford nursery of Messrs. Charlesworth and Co. about 1907, and it is very probable that this variety was the progenitor of many of the best forms in cultivation to-day. The plant was purchased by a small trade grower, and divided, various varietal names being given to divisions by subsequent purchasers. One portion received an award under the name of C. niveum variety Goliath, when exhibited at Manchester by the late G. S. Ball, Esq. A small plant came into my hands when I was in charge of the Scampston Hall collection. I self-fertilised the flowers and raised a goodly batch of seedlings. These flowered very true to the parental form, in fact, their uniformity was remarkable. When the Scampston collection was dispersed in 1919, some of these plants passed into the hands of Messrs. Mansell and Hatcher and were exhibited by them at the Chelsea Show of that year.

Although first discovered in 1876, Cypripedium Godefroyae does not appear to have flowered in this country until 1885. Its claim to specific rank was at one time much questioned by some authorities, who considered it to be a natural hybrid between C. niveum and C. bellatulum ; indeed, it is recorded as such by Nicholson, but time has proved this to be erroneous, and its claim to be a distinct species is now fully accepted. I have made the cross between C. niveum and C. bellatulum several times, but I have never flowered a seedling which could in any way be confused with the typical C. Godefroyae or its variety leuchochilum.

It is, however, a very variable species, and many fine and distinct varieties have been flowered, as is proved by the fact that although only two awards have been given to C. niveum by the Royal Horticultural Society, they have honoured no fewer than eleven varieties of C. Godefroyae with awards. One of the best, C. Godefroyae leuchochilum Hodgkinsonii was exhibited by Messrs. Sander at the Holland Park Show of 1906, and deservedly received the premier award. It would be interesting to know if this variety is still in cultivation.

The same firm imported a very fine type of C. Godefroyae in 1922. One of the plants, C. Godefroyae splendens, received an Award of Merit, but many fine varieties which flowered from this importation were fully equal to those which gained awards in earlier days.

Cypripedium bellatulum, perhaps the best known, and certainly the strongest grower of the group, was the latest comer, for it was not introduced until 1888. Of the many varieties of this species, the most noteworthy are C. bellatulum album, which was discovered by Mr. R. Moore, Assistant Commissioner of the Shan States. It first flowered in this country in 1895 and received a First Class Certificate from the Royal Horticultural Society. Perhaps the richest-coloured form which has yet been flowered, C. bellatulum, Exhims variety, also received a First Class Certificate when exhibited by the late J. Foster Alcock, Esq., in 1908. Happily, these two fine varieties are still in cultivation, and at Bodnant we have raised seedlings from each by self-fertilising the flowers.

A number of good hybrids have been raised between the members of the niveum group, and the green-leaved species, but, strangely enough, these have rarely been bred beyond the primary stage. It is too much to expect that species having such diverse characteristics can be blended to produce a perfect result in one generation, but the wonderful result obtained by Mr. G. F. Moore, of Chardwar, in the development of the large-flowered Cypripediums proves what may be achieved by careful and systematic line-breeding over a number of generations. Some people may consider the highest development has almost been reached by the magnificent Chardwar hybrids, but their perfection shows what a wide field is still open to hybridists in the evolution of hybrids with the niveum section on similar lines.

The few second-generation hybrids which have been flowered are a good augury of what may be expected from selective breeding. They include such fine hybrids as C. Fred. K. Sander (Annie Measures (bellatulum × Dayanum) × bellatulum) ; C. Frenchay (Antigone (Lawrenceanum × niveum) × Lawrebel) ; C. Lady Leon (Dowleri (insigne × Godefroyae) × Honoriae (Druryi × Godefroyae) ; C. Tom Worsley (Helen II (insigne × bellatulum) × Acteus) and C. Cupid (insigne × Venus crossed with insigne × niveum). It is interesting to note that in each case one of the parents has been used in both generations. Several of these hybrids have obtained awards, whilst the only third-generation hybrid which I can call to mind, C. Albion (Astarte (insigne Sanderae × Psyche (niveum × bellatulum), × niveum, received a First Class Certificate when exhibited from Bodnant in October 1923.

The two best hybrids within the niveum group are probably C. Virgo (Psyche × Godefroyae) and C. Blanchette (Psyche × niveum). These again are second-generation hybrids, and were raised in the Scampston collection, but the seedlings were subsequently acquired, by Clive Cookson, Esq., who flowered and recorded both hybrids.

Of the primary hybrids, it is rather strange that although C. conco-bellatulum and C. Wellesleyanum (concolor × Godefroyae) have gained awards, the better and more popular hybrid, C. Psyche (niveum × bellatulum) has never been honoured by the Royal Horticultural Society ; in fact, no combination of C. niveum with either of its allies has received an award.

It is well-known that in their native habitat members of the niveum—bellatulum group of Cypripediums grow on limestone cliffs, and growers early recognised that lime in some form was very necessary for the successful cultivation of these plants. Limestone, chalk and mortar have each been used, but so far as the latter is concerned, I am doubtful whether any form of burnt lime supplies all the essential elements, in their most readily available form, to truly calciphilous plants. I must confess that I am not sufficiently versed in chemistry to explain the point, but the fact remains that so far as this section of Cypripediums is concerned, the most consistent success has been obtained by using calcium carbonate in its more natural forms.

The late Sir Charles Strickland, of Hildenley, Malton, Yorks, was one of the most successful of the older growers, and he was fortunate in having a limestone quarry on his estate. Overlying the limestone was a layer of calciferous loam, and this, combined with finely broken crocks, Sir Charles used as a potting medium for his lime-loving Cypripediums. Being a near neighbour, I was able to obtain a supply of the soil for use in the Scampston Hall collection, and by its aid all the niveum group of Cypripediums flourished amazingly.

When I came to Bodnant, I found that the Little Orme at Llandudno was the most convenient place from which to obtain a supply of calcareous loam, and this proved to be much richer in carbonate of lime than that which I had used in Yorkshire, the analysis being Ca, CO_3. 39·44 per cent, whereas that of the Hildenley loam was only 6·68 per cent. This enabled me to use a more fibrous compost, and yet retain the same percentage of lime carbonate which proved so beneficial to the plants that I have gradually replaced the calcareous loam which contains no fibre with good fibrous loam and added carbonate of lime in a finely ground state. This system has proved so successful that I can recommend it to other growers. I now use our usual Cypripedium compost (minus Sphagnum moss) with about four per cent. of lime carbonate added. The best form of this that I know is the Buxton Lime Firms Co.'s No 1 grade of ground limestone, the analysis of which shows Ca. CO_3. 98·35 per cent. This is readily soluble, and as a freely-drained compost is essential for the health of the plants, there is a possibility of the calcium carbonate becoming exhausted after the plants have been potted for a length of time ; in such cases a little more may be sprinkled on the surface of the soil.

Lime in any form will kill Sphagnum-moss, and for members of the niveum group of Cypripediums this is better omitted from the compost. *F. C. Puddle, Bodnant Gardens, Tal-y-Cafn, North Wales.*

INDOOR PLANTS.

BERTOLONIAS.

(See Supplementary Illustration.)

Bertolonias belong to the Natural Order Melastomaceae, and are grown for their beautiful foliage, but in common with many other choice stove plants, very few of them are in cultivation at the present day. There are about six species, all natives of South America, and probably the only ones in cultivation at present are B. pubescens, which has bright, light green leaves, with a broad, chocolate-coloured band down the centre; B. maculata with dark green leaves and white lines on the veins; B. hirsuta, which has dark olive-green leaves with a red undersurface, and B. marmorata (syn. Eriocnema marmorata), the leaves of which are purple underneath, and bright green above, beautifully marked with irregular streaks of white.

B. Sanderae is a seedling from B. marmorata and from the decorative standpoint is much superior to the type, the upper leaf surface being largely light green and white. The seedlings or hybrids, which are mostly of continental origin, are generally more showy than that of the species, and also more difficult to cultivate, owing, doubtless to the lack of green colouring matter in the leaves, which are usually beautifully marked with red and white.

The Supplementary illustration presented with the present issue is of the fine hybrid Madame A. Bleu. Other beautiful varieties that were formerly in cultivation are Comte de Kerchove, Kerchoveana, Madame E. Pynaert, Madame Leon Gay, Souvenir de Gand and Van Houttei.

Bertolonias, with the exception of some of the choice hybrids, are easily propagated by means of shoot cuttings inserted during the spring ; they may also be increased by means of leaf-cuttings. They require a temperature of about 65°, and are best rooted in a bed of fibre and sand.

The plants should be grown in a compost consisting of equal parts light loam, fibrous peat and sand, with some pieces of charcoal added. The larger-leaved varieties are best grown singly in small pots, while the smaller leaved species and varieties are well-suited to growing in small pans.

The essentials for the successful cultivation of Bertolonias are a high temperature, shade and a close, moist atmosphere. If they can be given these conditions in a small house they may be grown on an open bench ; in larger and more airy structures they should be grown under bell-glasses or hand-lights. *J. C.*

FLOWER GARDEN.

STOCKS.

East Lothian and other Stocks raised from seeds sown last autumn should now be planted out in their flowering quarters. If sown early, the plants should now be sufficiently advanced for the double-flowered specimens to be selected.

Lothian Stocks sown early in the New Year are useful for succession, and should now be hardened off ready for planting out when beds and borders are ready for them. The so-called Beauty Stocks, of which there are now many fine varieties, may be treated similarly; these, however, come on much quicker and may be treated in much the same way as the Ten-week varieties. Plants from a sowing made during February are now ready for planting out, while another sowing made at this time will provide plants for a succession.

All Stocks, unless they are grown in pots, should be planted out in their flowering quarters when they are quite small, for they transplant badly and take a long time to recover when they have attained any considerable size and been starved in boxes.

Stocks, in common with many other half-hardy annuals, are often sown too early, and in consequence suffer before their summer quarters are ready for them. The Beauty Stocks are very useful for supplying cut flowers, their long flower-spikes lending themselves well to decorative purposes. *J. C.*

TREES AND SHRUBS.

FORSYTHIAS.

Because of their hardiness, freedom of growth, profuse flowering, and their adaptability to almost any position in the garden, the Forsythias are splendid shrubs for town gardens. Their season of flowering is February and March, the opening of the flower-buds preceding those of the foliage, and giving the plants an intensely striking effect after the dull days of winter.

F. suspensa is most commonly grown; a fully developed plant of this species attains a height of twelve feet, producing loosely hanging branchlets, which, when flowering, support a profusion of daintily suspended, golden, bell-like blossoms, the whole plant presenting an attractive picture of considerable beauty. The flowering shoots, if removed just as the buds are expanding, are admirably adapted to placing in vases for the embellishment of dwelling rooms, and plants, after suitable preparation, are useful for forcing in readiness for the early decoration of the greenhouse. The species is frequently used for covering a wall or fence and is very bold and conspicuous when a group is established in a large bed. For this purpose an enhanced display is obtained by severe pruning done immediately the flowers are over, the resultant young shoots producing a wealth of blossoms the following spring.

F. viridissima is free-flowering, but of stiffer and more compact habit than the foregoing, and not so tall. It is a suitable plant for the front of a shrubbery or as an occasional subject for a spring display in the herbaceous border.

F. intermedia is an excellent grower, forming a shapely plant, the long, tapering shoots producing a veritable shower of yellow blossoms. This species should be included in all planting schemes, as it is much admired for its generous and lasting display during the early weeks of spring.

Other kinds of more recent introduction and worthy of note are F. spectabilis and F. europaea.

Pruning, generally, consists in the removal of weakened shoots and the shortening of the more vigorous ones, in all cases, directly the period of flowering has passed.

All the Forsythias root readily from cuttings of soft wood, and may also be successfully rooted in a sheltered place in the open ground during the autumn. A stock of F. suspensa may be obtained easily from shoots rooted and growing about the base of large plants. *H. G. King.*

ALPINE GARDEN.

SOLDANELLA ALPINA.

A small plant of the Primula Order, known by the common name of Moon-wort, Soldanella alpina is well-known to visitors to the snow line of the Alps. This delightful little subject is seldom seen, probably because of a lack of knowledge of its requirements. Many catalogues of the past have stated that it is a difficult subject to cultivate, but whether this is correct or not I cannot state, although I am inclined to believe many who attempt its cultivation are too hasty, and expect too much from the plant in too short a time. We have had the specimen illustrated (Fig. 123) in our possession for fifteen years; it was collected by my employer.

In its natural habitat, the flowers of S. alpina appear among the melting snow. They are pale bluish in colour, with delicate, fringed, bell-shaped flowers, always nodding, and before opening they look like small tassels. The flower stems are six inches tall when well developed, and usually carry three flowers; those only two inches tall carry one flower. Each leaf is at first curled up and of a purplish hue before unfolding; when fully expanded it measures half-an-inch across. The leaves are fully developed before the flowers open, forming a deep rich green carpet for the graceful little bells.

The plant illustrated has carried forty-three flower spikes and well over eighty flowers, in an eight-inch pan. The pan is well drained and the soil used in potting consisted of leaf-mould, sand, loam, and peat, the same sort of compost one would make up for Primula sinensis; the outdoor treatment through the summer consists in standing the pan in the shade, where it is free from drip from trees or shrubs; this is important. Particular care must be taken that neither moss, nor Liver-wort, grows among the small tufts. The plant is removed to a cold house at the end of September, and at that time we top-dress it with some very finely sifted soil, carefully working this among the crowns and leaves with a pointed stick. In December and January the leaves will push up and unfold rapidly; at the same time the small flower spikes appear in the form of miniature loops, that is, the flower buds are bent towards the soil. In February they straighten up and the flower bells hang gracefully.

S. alpina does not require shade from October until it comes into flower, when shading is essential again. An extraordinary amount of water is needed through the summer by such a small plant. Last year we should have flowered this gem quite as well as this year, but, unfortunately, a few tiny black slugs cleared all except four of the spikes—a warning that slugs must be searched for during December nights. *Mark Mills.*

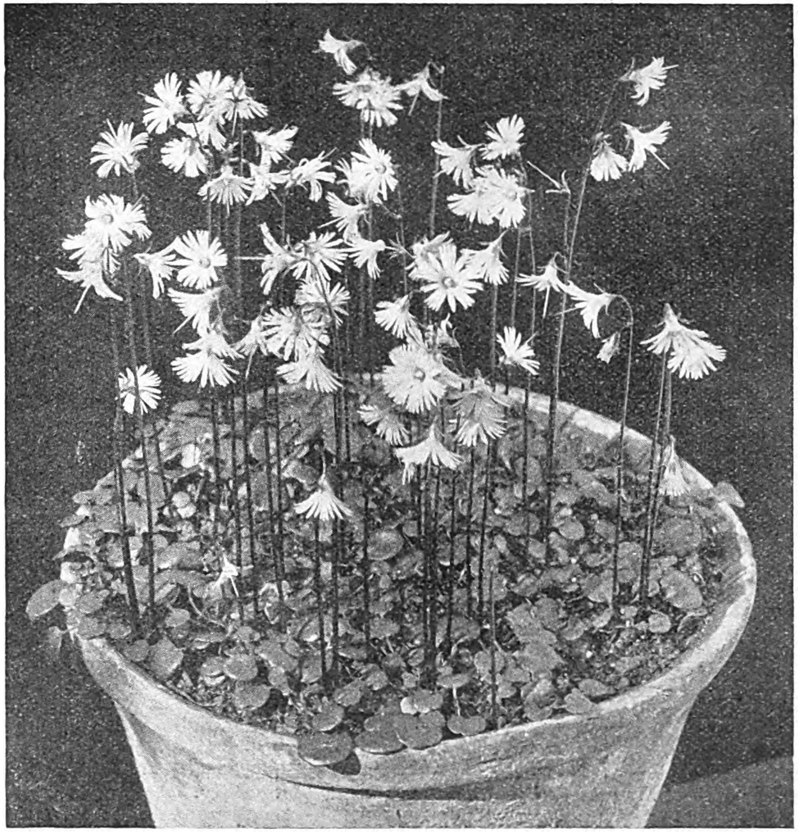


FIG. 123.—SOLDANELLA ALPINA.

ARNEBIA ECHIOIDES.

This plant rarely fails to attract a good deal of attention owing to the brownish-purple spots in the sinuses between the lobes of the corolla, gradually disappearing after the flowers have opened, otherwise, the flowers are of clear and pale yellow colour.

The large spikes are terminal and produced in early summer.

The leaves are sessile and alternate; the margins as well as the stems are ciliated. The height of the plants is about one foot, and it is not at all fastidious as to soil. It is a good subject for the rock garden. Cuttings made with a heel and inserted in late summer offer a ready means of increase, or the plant may be increased easily by root cuttings. It is a native of Armenia. *Ralph E. Arnold.*

HEPATICAS.

The various forms of Anemone Hepatica are very effective just now, in blue, white and rose, single and double flowers. Anemone (Hepatica) angulosa and its varieties have the larger flowers and foliage, and are the most effective; when established they produce an abundance of bloom from March to May. They grow freely in copses or half-shady positions in sandy leaf-mould. *L.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard, 1543.*

THE NEWER CONIFERAE.

(*Concluded from p.* 231.)

SILVER FIR.

THERE can hardly be two opinions at the present time as to which is the most vigorous Silver Fir for the British Isles, at any rate, for the western side. This is Abies grandis of Pacific North America. It is superior in several respects to the European species (Abies pectinata). It is a much more rapid grower in its early years. It is never injured by late spring frosts, as its buds do not burst until all such danger is over. The European Silver Fir is, on the contrary, so early in this respect, and its young growths so sensitive, that it is difficult to establish unless screened from frost by a canopy afforded by some light-foliaged tree, such as the Larch or Birch. Abies grandis is a healthier tree, not being subject to attack by the insect pest, Chermes, the bane of the European Silver Fir in this country at the present time.

Abies grandis puts on both height and growth quickly. A tree the writer planted twenty years ago is now about fifty feet high, with a girth at breast height of forty-five inches. Through possessing larger and broader needles, it may be considered a handsomer tree than the ordinary Silver Fir. It has not, however, the storm-resistance of the latter, consequently, to see it at its best, it requires a sheltered place, otherwise, when it towers aloft a gale may remove the top. The quality of its timber may be expected to be low, but the genus generally is not noted for high-grade wood. If a Coniferous tree is required which will give little trouble and go straight ahead, then Abies grandis may be recommended. It is quite accommodating as to soil provided there is plenty of moisture, and at the same time good drainage. Dallimore and Jackson, in their recent *Handbook of Coniferae*, state that "it is one of the least tolerant of shade among the Firs." I have not found it impatient in this way, and would, if unacquainted with this statement, have referred to it as a good shade bearer.

DOUGLAS FIR.

There is no European representative of the genus, Pseudotsuga. A few species are now known from the Far East of Asia; but the Pacific side of North America, the great Coniferous region of the world for size and variety, is the chief home of the genus. Here, the Douglas Fir (Pseudotsuga Douglasii) occurs in great abundance and is the most valued timber tree of this region. It is only equalled or surpassed in height by the Sequoias. A few distinct forms (species, in fact) of the American Douglas Fir are now recognised, but the Oregon or green form is the only one suitable for afforestation in these islands. The Colorado or Blue species is more adapted for a continental climate.

It is natural that such a valuable timber tree should have been tried extensively in this country. We have had now nearly a century's experience of it, if not sylviculturally, at least arboriculturally. It has proved itself the fastest grower of any Conifer, though possibly Abies grandis may run it closely. From seeds however, the Douglas Fir would win, as grandis, like species of Abies generally, requires a longer sojourn in the nursery before it is fit for permanent quarters.

Of all the newer Coniferae, most faith has been and is being placed in the Douglas Fir. Given a fairly fertile soil, free from lime, and an adequate rainfall, the tree will produce a large quantity of timber in a comparatively short time. and provided its wood is acceptable, should be the most remunerative tree to plant for supplying mines with timber.

It is not a tree to dot about, but requires to be planted in large areas for mutual protection, as it has no wind-resisting quality. It is difficult to keep on its feet in its youth, and in later years, when root-firm, if much exposed, a gale readily snaps off its top. The difference in the resistance to wind shown by young Douglas Firs and Sitka Spruces has recently been vividly brought before my eyes as the result of the severe storm which visited us on January 28. In a six-year-old plantation stocked with Sitka Spruce to windward and Douglas Fir to leeward, not a Spruce was blown out of the vertical, while a fifth of the Douglas Firs required staking. A small patch of Abies grandis and some ordinary Spruce of the same age stood firm. The trees in this plantation were originally spaced four feet by four feet, though there are a good many gaps, as a late frost took toll the first spring after planting. The general opinion, I believe, is that Douglas Fir requires spacing at least six feet by six feet to give steadiness in early years.

The Douglas Fir, if not windswept, makes a very graceful, umbrageous and imposing tree. It casts a dense shade and is to Conifers what the Beech is to broad-leaved trees. Neither will suffer any rival. Just as the Beech will suppress any other hardwood, so will Douglas Fir any other Conifer. They both make ideal trees for underplanting. The Beech probably can endure greater shade, but in a contest it would be suppressed by the more quickly-growing Douglas Fir. From the standpoint of soil improvement, a mixed plantation of Beech and Douglas Fir might be made by giving the former a few years' start, and then adding the latter.

To the forester, the resistance to decay of the dead side-branches of the Douglas Fir is a drawback. In order to produce clean timber the removal of the laterals as they die off is almost a necessity. Among Conifers it stands in this respect at one extreme and the Larch at the other. The fine, aromatic fragrance emitted by the Douglas Fir makes working among the trees a delight. The Colorado species, on the other hand, has a rather disagreeable odour. The timber of the Douglas Fir is superior in durability to that of Pines, Spruces and Silver Firs, but less durable than that of Larch. Fencing posts made from British-grown trees are said to last in the ground about half as long as Larch.

OTHER SPECIES.

Among the newer Coniferae there are besides the above others which at present, from the forester's aspect, may be considered to be in the second class, though the future may possibly raise one or more to first rank. They belong chiefly to the Cypress-build of tree. Of these the most easily raised and grown is the Giant Arbor-vitae (Thuja plicata). If its wood, at the pole stage, had for fencing purposes some of the durability of the Larch, the tree would indeed be a boon; but I gather this is not so. The Lawson Cypress (Cupressus Lawsoniana), in its manifold varieties so conspicuous in gardens and pleasure grounds, is worthy of more attention in plantations. It is a quick grower a good wind-resister and a yielder of durable timber of fine quality.

The Nootka or Yellow Cypress (Cupressus nootkatensis), apt to be confused with Lawson's Cypress, though quite distinct, is the hardiest of the genus, producing excellent timber and thriving on poor soils. It is somewhat troublesome to raise, as its seeds, unless sown so soon as ripe, are slow to germinate. Then there is the Monterey Cypress (Cupressus macrocarpa), hardier than might be expected, considering its native habitat. It is easy to raise and is the quickest grower of the genus. It is not particular as to soil, but care has to be exercised in transplanting, otherwise many deaths may ensue. It is worthy of attention as a useful and ornamental tree for the milder parts of the British Isles. No difficulty has been experienced in growing the tree here, but it is not easy to keep upright in its early years, as the growth of its shoot-system outbalances that of its roots. The timber has durability, and so may prove valuable for fencing.

Leaving the Cypresses, a word of praise might be said for the Western Hemlock Spruce (Tsuga Albertiana), a beautiful tree of a different habit to any of the foregoing. It is a good grower, preferring a moist loam, but is not particular in this respect, provided the rainfall is ample.

All the above trees which I have ventured to designate as second-class from the forester's standpoint are native of Pacific North America, Three Silver Firs from the same region might be added: Abies nobilis, a fine, dark glaucous-green Fir, is certainly worth trying. It provides probably the best timber of the genus. In parts of Scotland it is apparently quite a success, but elsewhere it is liable to attack by Chermes. Abies Lowiana and A. concolor, closely allied and often confused, are distinctive in their light glaucous foliage, thus contrasting with the dark hue of A. nobilis. They are both good growers and little subject to insect pests. Of the two A. Lowiana is likely to make the bigger tree and so be favoured by the forester. *John Parkin.*

A REVISION OF VIOLAS.

(*Continued from p.* 213).

VIOLA BECKWITHII, TORR. and GRAY.—The description of the leaves as "bold, broad, heart-shaped violet-foliage" is misleading. The leaves are broadly ovate in general contour, but they are cut into many segments, being doubly tripartite, and the segments are long and narrow.

V. Bertoloni.—This, in any case, should be Bertolonii. It is given as synonymous with V. cenisia. The origin of this confusion which has been repeated in several English catalogues, I have been unable to trace. V. Bertolonii, De Salis, is a distinct species, belonging to the calcarata group, and has not the remotest resemblance to V. cenisia. One nursery supplied me with the true V. Bertolonii with a query as to its name; another sent me the true V. cenisia under the name of V. Bertolonii. V. Bertolonii is endemic to Corsica and Sardinia. The flowers are reddish-violet, round in shape, carried on long stems, with a markedly long spur. The lower leaves are small, nearly round and slightly crenate; the upper ones oblong entire and gradually attenuated into the leaf-stem. The stipules have only one or two lateral segments which sometimes are quite rudimentary.

V. blanda, Willdenow.—This species, as Farrer indicates, has often been confused with V. pallens, (Banks) Brainerd. The difference is largely one of geographical distribution. The latter frequents the more northerly districts —Labrador, Newfoundland, Quebec, Alberta— though it also goes southward to the Colorado Mountains, but always at considerbaly higher altitudes than V. blanda. V. blanda is a more southern species, commencing only in Quebec and extending to Georgia, and confining itself rather to the eastern half of the American Continent. In consequence, V. pallens is much more hardy than V. blanda. The former also is a denizen of bogs, while the latter frequents woodlands rich in humus. There are certain marks by which the two species may be easily distinguished: the leaf-blade of V. pallens is quite glabrous, while V. blanda shows scattered hairs on the upper surface; the former lacks the pink tinge of blanda's flower stem, leaf stem and leaf midrib, and the seeds of the former are almost black, while those of V. blanda are brown. It is, of course, necessary in exercising the last criterion to be certain that the seeds are ripe. The differences between the two species are propounded at this length for the reason that seed of V. pallens is being offered as V. blanda, while the true V. blanda is obtainable in England.

V. bosniaca, Formanek, is now to be known as V. elegantula, Schott—the name now adopted by most Continental catalogues, but strangely fought shy of in this country. The Kew *Hand List* even gives V. bosniaca as a synonym of V. declinata, Waldstein and Kitaibel, though the latter is now placed among the lutea Violas and the former among the gracilis group. Farrer gives the species an emphatic testimonial for ease of culture as well as beauty; but ease is not the universal experience, and I notice that in some quarters the advice is given to treat the plant as biennial, while in one catalogue it is simply stated to be annual. Mr. A. T. Johnston, in his book *In a Welsh Garden*, states that V. bosniaca disdains him, whether tried in border, ledges of rock garden, sun and shade, as well as moraine. Mr. Bowles confessed to the same lack of success until he tried it in the "fish hatchery or filter beds," since when, he writes, "I weed it up as well as supplying all who come." The "fish hatchery" is, I think, a version of the sand moraine; and in view of the somewhat arid mountain slopes in Dalmatia and Albania from which V. elegantula comes, a light soil with quick drainage, in sun, would appear to be a likely recipe. From what I have observed, however, this beautiful Viola, with its unique colour, would seem to grow lanky and small-flowered with age, so that it may not be fruitless advice to treat it as biennial. Some of the garden hybrids that are now appearing are extremely attractive, and preserve the colour of the type.

V. Brittoniana, Pollard, has often been confused with V. septemloba, Le Conte, and this confusion has been repeated by Farrer. The two species are not only geographically distinct, V. Brittoniana spreading from Virginia northward, and the other from southern Virginia southward; but they are also distinct in garden value, though both are beautiful species. The former is violet-purple, the latter pale purple; the former has the leaves cut palmately into numerous close segments, the latter pedately cut into segments which are separated one from another by a broad sinus, like the divisions of a bird's foot (as in the well-known V. pedata, the Bird's Foot Violet). The seeds of V. septemloba are much darker brown, and larger; the flowers, also, are larger, being sometimes two inches in diameter. It is found in nature in Pine woods, whereas V. Brittoniana (offered sometimes as V. atlantica in Continental catalogues) frequents moist, sandy or peaty places on the coast. *E. Enever Todd.*

(*To be continued.*)

All gardeners and nurserymen who take the naming of plants seriously owe a debt of gratitude to Colonel E. Enever Todd, for his interesting and valuable note: "A Revision of Violas," the first instalment of which appeared on p. 212.

I was particularly interested in what Colonel Todd wrote about Viola arborescens. I first became acquainted with this interesting plant from the beautiful illustration in Moggridge's *Flora of the Riviera.* Last April, when collecting in Majorca, I heard that the plant was to be found on the shores of Alcudia Bay. For some time I was unable to find it in spite of making several careful searches, but at the very last minute of my visit to Alcudia, I came upon it growing in very sandy soil on the fringes of light scrub in a thin open plantation of Aleppo Pine, close to the sea shore. It grew rather taller than is suggested by Moggridge's illustration, six to nine inches high, with wiry, woody stems, narrow, slightly-notched leaves, suggesting slender plants of Pentstemon heterophyllus. It was not in flower and it was only by catching sight of a single seed capsule that I managed to discover the plant, so unlike was it to any Viola that I had ever seen. I collected a number of specimens and established them at Stevenage. Last season they behaved in a very odd way, producing throughout the summer a long succession of seed capsules, but never a single flower. By "flower" I mean the showy-petaled blossoms commonly known as such. What I suppose it was doing was to produce cleistogamous flowers, such as Violas often do produce, but though I examined the plants carefully at frequent intervals, I never could detect any semblance of anything that could be called a flower. However, seeds were collected and are now germinating.

I collected V. arborescens again this year, in February, in the same place. A friend who lives at Alcudia tells me that it does produce very pretty little flowers in the wild; in autumn or winter, I think he said. I fear the species will not be very hardy in this country. I planted it out in several positions, and in most cases it has died during the past winter at Stevenage, though in one or two cases it survived in the open without protection. It came through the winter quite happily in an unheated alpine house where the temperature fell many degrees below freezing on several occasions. The best chance, I think, would be to grow it in very sandy soil in a well-drained position and in full sun.

It will be interesting to see whether my seedling plants will produce the lovely flowers illustrated by Moggridge. *Clarence Elliott, Stevenage.*

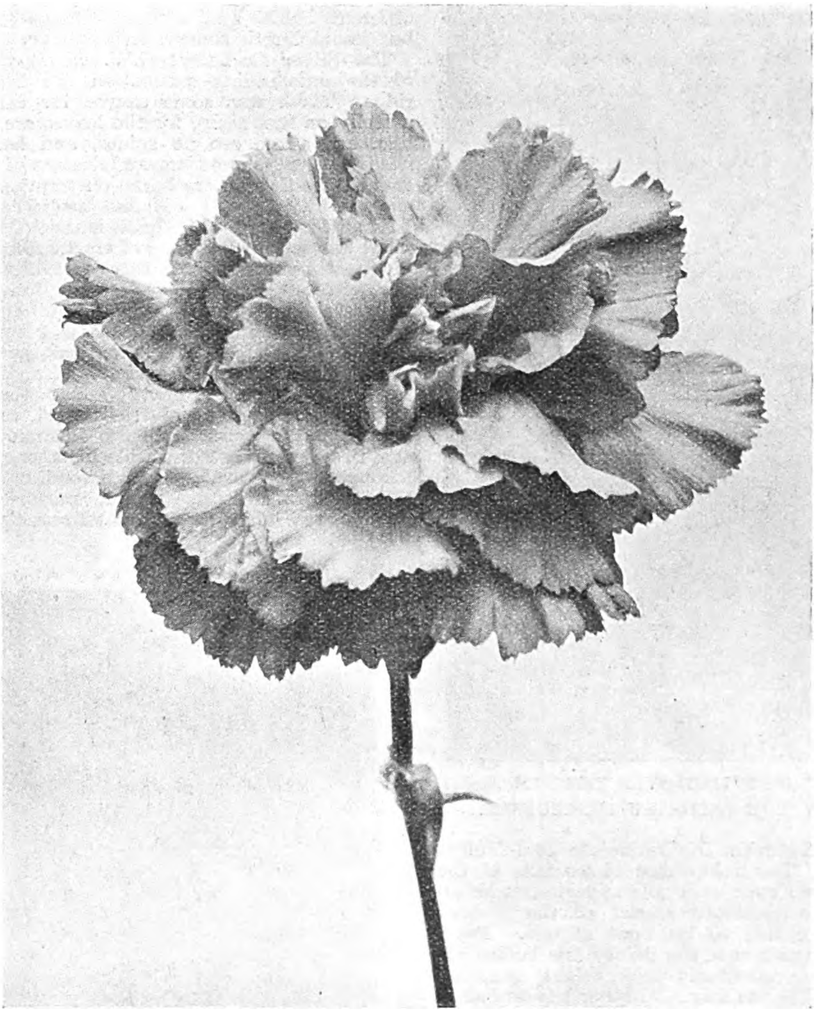


FIG. 124.—CARNATION MRS. A. J. COBB.

A glowing crimson, sweetly-scented variety, which won the "Daily Mail" Gold Cup at the British Carnation Society's Exhibition on March 29 and R.H.S. Award of Merit, April 5. Shown by Mr. A. F. Dutton. (see pp. 238 and 256).

COLOUR CONTRAST.

Experiments in colour contrast and combination at a trade flower show are drastically limited, if not entirely suppressed, by the bald necessity for exhibiting wares. Nevertheless, it is a mistake to put all one's goods in the shop window. The first requirement of a shop window is that it should be attractive; if customers can be lured to look in at the window, they will probably be lured to look in at the shop which lies behind the window. This sense of hidden treasure in reserve, arousing the curiosity of the buyer, is one of the greatest assets of successful salesmanship. Can it not be profitably applied to plants, as well as to other wares?

It really comes to this: the nurseryman depends upon the effect of individual plants, instead of on their bulk effect. In his creed, a plant not exhibited is a plant non-existent. But the trend of modern gardening is towards mass effect—the popularity of the herbaceous border may be cited—and away from the botanical collection; so that it might be worth while to give the prospective buyer a few ideas on what can be done with colour and form, in conjunction and opposition, as opposed to mere variety indefinitely multiplied. Once drawn, he can easily be persuaded to accept a catalogue, which will further whet his appetite.

A pageant of all colours, superimposed and jumbled up, will, if the light is reflected from each, give a common denominator of greyness, and although it would be an exaggeration to say that the sum total of effect at a modern flower show is as dull as that, still the fact remains that the innumerable colour encounters do give a kaleidoscopic effect, in which much of the sense of form is submerged. One has only to view it from a little distance to be sure that this is so.

It occurred to the writer recently to observe a few of the colour combines and colour collisions which were actually staged, though purely by accident, in a museum-like display of flowers, with a view to using the species as an effective draw, or planting them on the grand scale. Only plants which were staged actually in contact, and are of the same social standing—rock plants, shrubs, and so forth, are quoted.

One of the most spectacular encounters was that between Iris reticulata and Tulipa praestans. The voluptuous violet falls of the first, tittered over with gold spangles, came up against the luminous scarlet of the second, and both seemed to leap out at one. By a curious circumstance the dainty Iris bucharica, with cream standards and bright gamboge falls, joined in the fray. Another Iris reticulata opponent was Narcissus cyclamineus, a glowing, chrome-yellow elfin flower like a Dog's Tooth Violet. Elsewhere the hot scarlet of Anemone fulgens encountered the lucid orange of Narcissus bulbocodium till the whole went up in a sheet of flame—or would have if it had not been smoked out by lesser things.

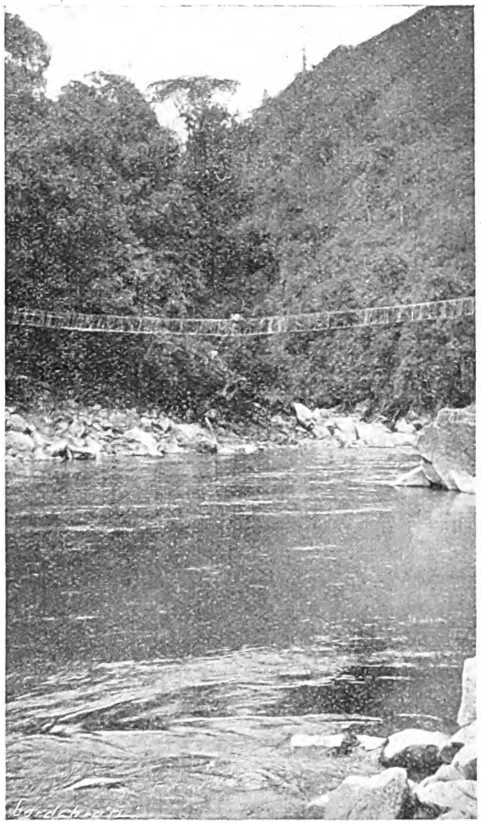


FIG. 125.—CANE BRIDGE OVER THE NAM TAMAI, BELOW THE SEINGHKU CONFLUENCE.

Forsythia viridissima and Rhododendron praecox react pleasantly, and so also do F. spectabilis and the dwarf crimson Azalea Hinodegiri; though the latter, not being a pure colour, there is not quite the same "zip" about the contest that there is with some of the others. Amongst rockwork, the soft powder blue of Scilla sibirica goes well with the moss-green and limpid yellow of Saxifraga macedonica, as does the sky-blue of Omphalodes cappadocica, with the rose-pink of Azalea Hinemanyo.

Another fine explosion was caused when a certain violet Crocus collided with a bright sunshine yellow Tulip, in which flickers of orange and red showed craftily; and yet again when our old friend Iris reticulata (which is a brand to fire many a discharge) met the strong gold of Crocus susianus.

But all these tiny explosions needed to be multiplied a hundredfold to be heard in the general uproar. *F. K. W.*

MR. F. KINGDON WARD'S NINTH EXPEDITION IN ASIA.*

IX.—The Temperate Rain Forest.

A few more words on Ilex nothofagacifolia, which, by the way, is very distinct from I. yunnanense, with which it has been tentatively compared, or from I. crenata, another small-leafed species. There seems to be no other species which approaches the splayed-out, terraced habit, the thin, almost circular tiny membranous leaves, the almost sessile scarlet berries, and the queer, warty, corky stems of I. nothofagacifolia—the southern Beech suggested by the leaves is Nothofagus Cunninghamii. Perhaps the species which comes nearest to it is I. intricata, a Sikkim plant of quite different habit, and without the corky skin, but resembling it somewhat in foliage.

The Silver Barberry (K.W. 6,787) was one of the outstanding shrubs on the limestone ridge. These was some excuse for calling it a Holly on first sight, for the leaves are Holly-like, and there are no spines, and hence no need for short shoots bearing clusters of leaves, though the flowers are borne on terminal short shoots—but these I did not see when first I found the plant. The habit is that of a scrub plant sending up a number of erect, unbranched, divaricating stems, some three feet high. The dark green 'Holly' leaves, rather longer and narrower than those of Ilex Aquifolium are beautifully inlaid above with a network of jade-green veins; but the *clou* of the species is the under-leaf-surface which is of a glistening silver-white. There being no spines, the leaves are borne directly on the lacquered, red, long shoots, and it was not till the autumn when I again scaled that dreadful limestone ridge, through the barricade of tanglewood, and found the clusters of Pear-shaped, purple berries dangling from short shoots, that I saved my face by recording in my field book that the plant had the fruits of a Barberry. B. insignis, a Sikkim shrub, gives the clue. It also has Holly-like leaves, borne directly on the long shoots; but they lack the silver lining of the Silver Barberry.

Another good shrub found on the limestone ridge was a small-leafed Cotoneaster, of somewhat angular habit, with stiff, fan-shaped, branching stems. The flowers are pinkish, and so abundant as to bead every branch with long rows of scarlet berries. It is a plant for the top of the rock garden, requiring free scope to branch out in every direction, the stems reaching a length of 3 or 4 feet. Exposure does it no harm, and keeps it trimmed to decent proportions. I might mention here that this band of limestone ran right across the country in a narrow belt, culminating in peaks of 16,000 feet to 17,000 feet; it was completely surrounded by granites and schists. The limestone is a well-bedded crystalline rock, and apparently not magnesian.

Along the crest of the ridge, or rather, lining the sheltered face right to the summit, were dense thickets of Rhododendron, Enkianthus, Lonicera, Deutzia, Berberis and other shrubs, but chiefly Rhododendron. The species were, first, R. aureum, and higher up, clumps of a very similar bush, almost impossible to distinguish in foliage, but with flowers of a lovely pale flesh tint, quite unusual in the genus. The long style is bright crimson, the calyx large and leafy as in R. aureum, the leaves closely lepidote, with waxy papillae between the scales, giving a smoke-grey colour to the leaf. Altogether it is a beautiful and remarkable species, not so diffuse and floppy as R. aureum, but decidedly not of so hard and glittering a colour. I collected seeds under number K.W. 6,794, but there is probably some aureum mixed with it.

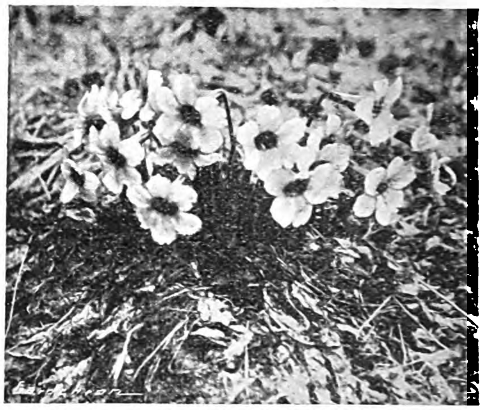


FIG. 126.—OMPHALOGRAMMA SOULIEI AT 11,000 FT., IN JUNE.

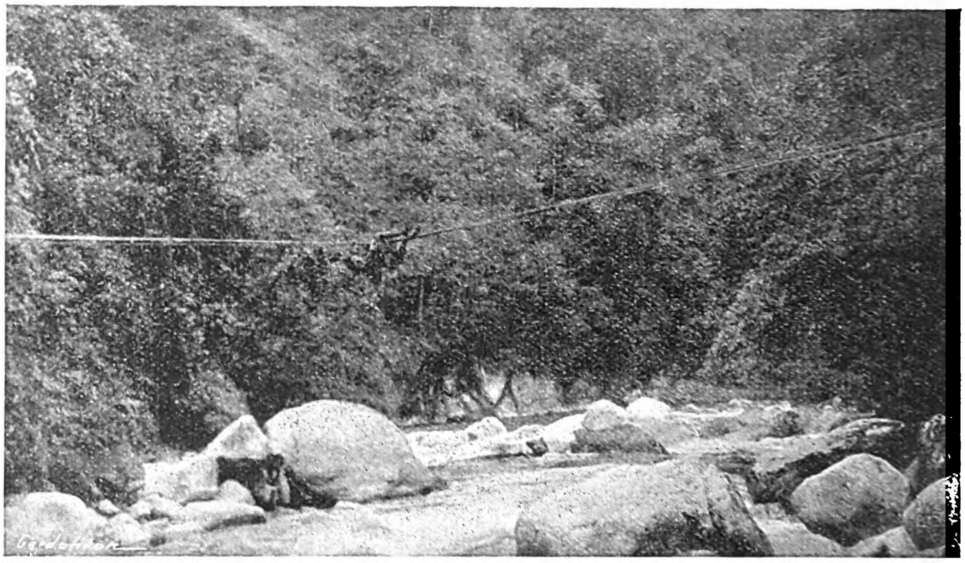


FIG. 127.—CROSSING THE SEINGHKU RIVER.

A little higher up, I came to bushes of a small-leafed 'Thomsoni' species, the flowers over (K.W. 7,612). In October a few flowers opened prematurely—pale rose with carmine spots, suggesting R. Martinianum as a possibly close relation. It had flowered atrociously in 1926, and it was as much as I could do to find half-a-dozen capsules; but by October it was crammed with buds, many of which were tentatively opening. The only big trees along the ridge were a Juniperus and a Tsuga, both rather ravaged by storms, but a haven of refuge for epiphytic shrubs, particularly the tiny-leafed R. sino-vaccinioides, and the yellow 'Edgworthii.' The former blooms at the end of July, or in August, and the tiny pinkish flowers, scarcely visible amongst the polished, Box-like leaves, are probably the smallest of the genus, and not particularly Rhododendron-like.

---

* The previous articles on Mr. Kingdon Ward's Ninth Expedition in Asia were published in our issues of August 14, 28, October 9 and November 20, 1926, and January 1, February 19, March 5 and 19, 1927.

In October, ascending astride the ridge, a little higher up, I found in fruit the delicious R. tephropeplum and the 'Haematodes,' of which I shall have more to record later. In the undergrowth were species of Vaccinium, one with club-headed racemes of pink flowers like those of a Pieris, followed by grape-blue berries, being particularly attractive.

However, we will now return to the valley, where I presently found a new 'Vaccinioides' Rhododendron which has been named R. asperulum. It blooms a month later than the orange-flowered R. insculptum, another new series collected here, and more than a month earlier than R. sino-vaccinioides, and has pinkish, rather uninteresting flowers; indeed, the only one of these small-leafed epiphytes with any claims to beauty is R. insculptum. Botanically, however, the 'Vaccinioides' Rhododendrons, which are distinguished from all other species by their long-tailed seeds, are interesting. They are confined to the temperate rain-forests of the Indo-Malayan region, and are distributed somewhat as follows: R. vaccinioides, Sikkim, and eastwards to the Tsangpo Gorge, that being its first and only recorded occurrence outside Sikkim; R. sino-vaccinioides, R. insculptum and R. asperulum, Upper Burma; R. emarginatum and R. euonymifolium, south-eastern Yunnan. None of them is a plant with any horticultural future.

R. dendricola occurred scattered on the lower ridges at 6,000 feet to 7,000 feet, no longer epiphytic, but an erect shrub, some eight or ten feet high; and I collected seeds from this, the highest and hardiest form; but it is not likely to prove hardy in Britain. Two other species of the 'Maddenii' series were found in the valley. One of these—K.W. 6,809—had rather small leaves, something like those of R. Lindleyi, and big capsules, but as I never saw it in bloom, I could make nothing of it. The second, K.W. 6,808, was also barren at the moment. But in September, I came across pools of yellow corollas drifting beneath giant trees, and finally traced them to this species, for the most part high up out of reach and invisible, but in one instance low down and accessible. And what a jolly shrublet it was, festooned with its little triplet trusses of bright, clear butter-golden flowers, smaller than those of R. ciliicalyx. The abundance of 'Maddenii' Rhododendrons in these forests will not have been overlooked. R. Maddenii, R. megacalyx, R. sino-Nuttallii, R. dendricola, and the two species just mentioned, a total of six, compared with only three (including again R. megacalyx, and R. Maddenii) on the other side of the divide. 'Maddenii' is essentially an Indo-Malayan group, but the species are not nearly so restricted in range as was formerly supposed. R. megacalyx in particular has had its range enormously extended recently. During the nine days, May 23-31, spent at my base camp, I had an opportunity to gauge the richness of the flora, collecting in the rain forest and in the open meadows. The variety of woody plants was astonishing, though there was not a great deal in flower yet. The dense thickets by the river, and the more open thickets in the meadow, contained species of Buddleia, Rosa, Berberis, Viburnum, Euonymus, Clematis, Lonicera, Cotoneaster, Alnus, etc. Orchids were fairly abundant, a large Cymbidium being in bloom, while in the summer the orange and black flowers of Dendrobium fimbriatum were often met with. In the meadows, in the Alder copse, and by the streams grew species of Impatiens, Mimulus, Veronica, Cynoglossum, and later in the year, Swertia varius, Zingiberaceae, an Anemone, and gigantic Thistles. The epiphytic flora was still abundant, and included besides the plants mentioned, several Gesneraceae (Lysionotus and Aeschynanthus), Zingiberaceae, Melastomaceae, Agapetes, Vaccinium, etc.

Meanwhile, I was both getting my stores and rations brought up from below, a few loads at a time, and trying to engage coolies for the next stage of the journey. But as it was clear that no good purpose would be served by working from my base camp, I persuaded the Tibetan colony—with the lure of silver—to build me another hut at a point some miles up the valley, or where the stream divided, at an altitude of 11,000 feet. This was to be my advance base, and from that *pied à terre*, stocked with two months' supplies, I intended to do the bulk of my collecting. It was already apparent that there was no need to go outside the Seinghku valley; I could get as many good things as I should be able to collect there.

Drizzling showers now occurred every day, with occasional temporary bursts of sunshine, usually in the early morning. The day temperature often exceeded 70°, once it touched 75°, which was quite pleasantly warm without being oppressive. The minimum never fell so low as 50° at night, usually ranging between 53° and 55°. Curiously enough, when I returned here at the beginning of August, the maxima and mimima temperatures were almost exactly the same as at the end of May, the heavy rainfall, and the heat, absorbed in melting the snow higher up, serving to keep the temperature down. Again, at the end of October, when the weather became finer, there was very little change of temperature, though the nights were somewhat colder. The following table shows what a very steady temperature was maintained.

Date.		Maximum.	Minimum.	Mean.
May	24	69·5°	51·5°	60·5°
,,	25	64°	55·5°	59·5°
,,	26	71°	53°	62°
,,	27	70·5°	53°	61·5°
,,	28	73·5°	52·5°	63°
,,	29	75°	54°	64·5°
,,	30	67°	55°	61·°
August	3	70°	55·5°	62·5°
,,	5	69°	56°	62·5°
,,	6	74·5°	56°	65°
,,	7	77°	56°	66·5°
,,	8	73°	56·5°	65°
,,	9	70°	55°	62·5°
October	24	70°	47°	58·5°
,,	25	69·5°	49°	59°
,,	26	67°	51°	59°
,,	27	68°	44°	56°
,,	28	70°	40·5°	55°

That is to say, during eighteen days on which both temperatures were recorded, in spring, summer and autumn, the greatest range of temperature was only between 77° and 40°—a range of 37°; and 50° would probably represent an extreme range at any time of year, the temperature perhaps never dropping below 30° or rising above 80°.

By June 1, I had secured ten coolies, and with a minimum of kit and food we started up the valley for our alpine camp, leaving the rest of the stuff at the base; more rations could be sent up in a few days, but it was getting late, and I was anxious to start work in the alpine region so soon as possible. So difficult was it to engage any coolies at all—I had to send messengers three days' journey to the Adung river for most of them—that it was essential when I moved, to go to a good place, since owing to the general inertia, I should probably have to stay there for a fortnight at least, before I could shift my camp again. *F. Kingdon Ward.*

A FLOWER SHOW AT NICE.

THE flower show held at Nice on March 12 is perhaps worth recording, for although the quality of the flowers may not be any better, if so good, as our English-grown blooms, the arrangement in general effects are so much more artistic. The point on which I would insist is that there are so many fewer flowers shown, so those that are shown are far more beautiful, "like a picture," in effect.

To me who had not seen the displays of varieties of Citrus fruits shown by Mr. Hanbury, of La Mortola, at Vincent Square, the display of M. Dupeux was of especial interest and beauty. Surely in our haste for novelties of fleeting effect, we lose the lasting beauty of this race of fruiting evergreen shrubs or trees! Certainly the colour effect was even more beautiful than the best scheme of spring annuals that needs replacing each season. Instead of endless potting and renewing of plants, is it not even truer gardening to syringe and prune and shelter these magnificent fruits of the earth which we are content to admire in a few special gardens?

The splendid vases of Carnations shown by Messrs. Bonfils attracted all eyes by their beauty and artistic arrangement, but these carefully disbudded specimens with stalks of several feet in length are, of course, grown under glass, and to me the more modest groups of Carnations grown in the open air and only sheltered by mats on cold nights were still more interesting. It is something to know that such a variety will withstand a little bad weather, or that another variety will flower in mid-winter, while another may fail to produce good flowers at that season in the open.

These Carnations were all shown in big earthenware jars, coloured brown, orange, green, or rather, pale lemon, so that each shade of colour in the Carnation had its foil in the jar. They were stood on the ground or raised on pillars above the verges of grass that edge the beds, as no staging was allowed, and with plenty of space between these jars—which often hold more than two hundred blooms—the value of the flowers was greatly enhanced. "No crowding" should be the motto at exhibitions.

The attempts at rock gardens were as inferior to English work as their arrangement of Carnations was superior. There was an un-rehearsed effect where a Wistaria trained up a Palm trunk (whose head was outside the big shed) had burst into flower, and with the forced Lilacs and Azaleas grouped round its foot gave a pleasant sensation of open-air gardening. Altogether, the show gave much pleasure to the writer. *Edward H. Woodall.*

MESEMBRYANTHEMUM.

(Continued from p. 117.)

MUIRIA, N. E. BR.

Muiria Hortenseae N. E. Br.—In reference to the note at the end of my description of this very singular plant on p. 116, concerning the extraordinary ability of the large internal cells (idioblasts) when isolated and some placed on glass and some on a piece of paper to withstand the dry atmosphere of a living room without drying up, I now wish to record further, that these same cells, still upon the same pieces of glass and paper, remained under exactly the same conditions without any covering, fully exposed to the air and dust of the room for more than a week without drying up and apparently without shrinkage in volume, and were still glittering like dew-drops. The temperature of the room was about 60° to 62° Fahr. in the daytime, and about 50° Fahr. at night. On the tenth day a few cells showed signs of collapsing. On the twelfth and thirteenth days most of them were drying up, and on the fourteenth day only one cell, which was about one line in diameter, remained fully plump and glittering, all the others being partially or fully dried up. This one cell remained plump until the eighteenth day. An ordinary saucer half-filled with water was placed by the side of the cells on the second day after they were isolated, but the water had completely dried up two days before the cells were drying up. This seems to be such an extraordinary conservation of cell-contents and vitality under conditions that I believe would be fatal in a very short time to the cells of most plants, that I deem the fact worthy of record.

8A.—MENTOCALYX, N. E. BR.

Perennial, stemless. Rootstock fleshy, bearing two or more growths, each, under natural conditions, with only one pair of leaves, except when making a new pair. Leaves opposite, unequal, when young erect and pressed together so as to resemble an eagle's beak; adult leaves spreading, large and thick, flat and deltoid in outline on the face, one of them compressed and deeply keeled at the apical part on the back, velvety-puberulous. Flowers solitary, terminal, pedicillate, without bracts. Calyx unequally 6-lobed down to the base of the ovary, and when in bud with the base of one of the two larger lobes more projecting than that of the other lobe so as to form a sort of chin to the bud. Corolla large, petals numerous, free. Stamens numerous, erect, somewhat loose; filaments not bearded. Glands 6, separate, large. Stigmas 6, stoutly subulate, somewhat bristly-plumose, acute. Ovary wholly superior and 6-ribbed when in flower, becoming half-inferior when in fruit, 6-celled; placentas on the floor of the cells; ovules numerous in each cell. Capsule half-superior, obconic, convex, and with 6 gaping sutural ridges on the top, and with 6 valves and cells; valves deltoid, reflexed-spreading when expanded; expanding-keels with their basal part rising into a hump half as long as the valve, thin, parallel, minutely toothed at the edges, and their upper part adnate to the valve and then forming broad, marginal wings; cells flatly roofed with membranous, flexible cell-wings, without a tubercle at the opening. Seeds many in a cell, ovoid, pointed at one end, smooth.

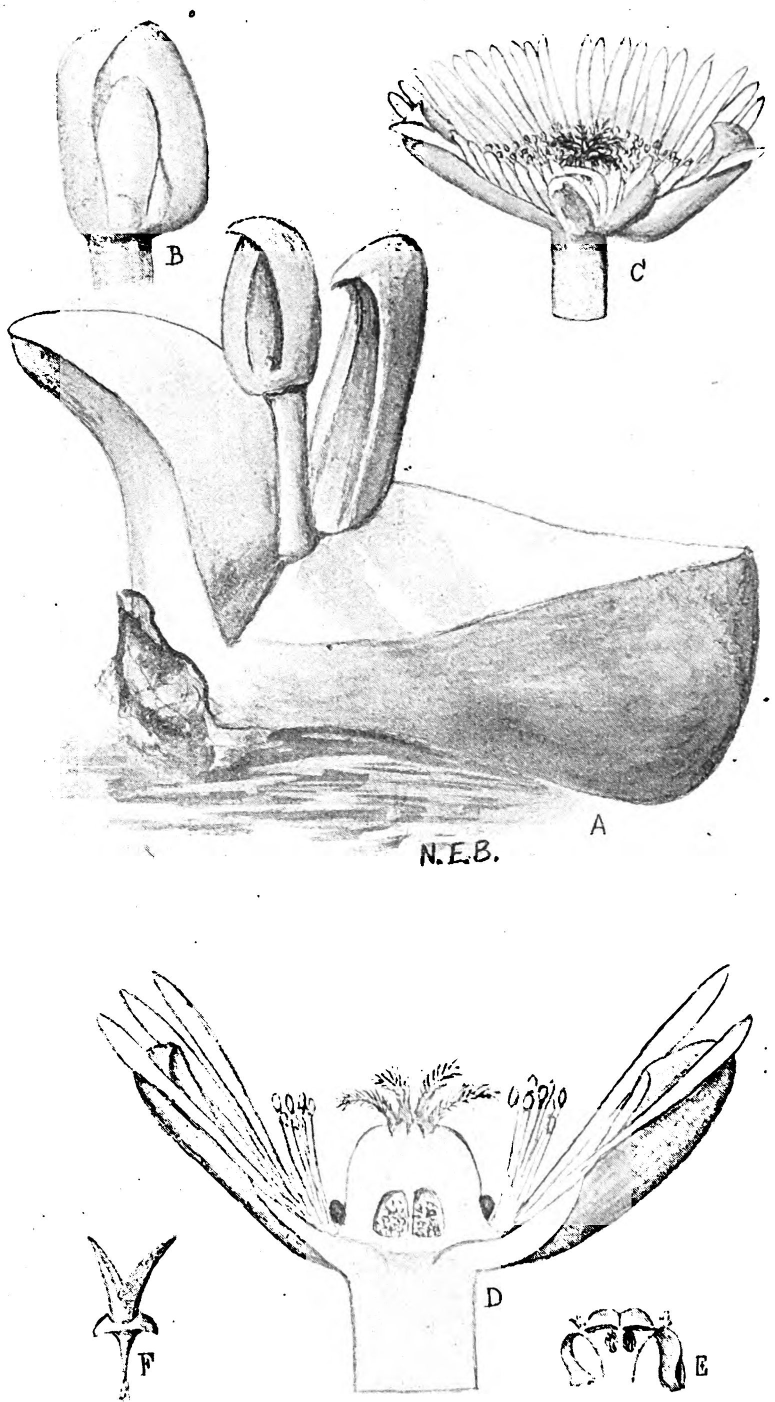


FIG. 128.—MENTOCALYX MUIRI, N. E. BR.

A, a flowering growth; B, a flower bud just ready to open; C, a flower; D, longitudinal section through a flower; E, longitudinal section through a ripe capsule; F, a seedling. All natural size except D, which is enlarged rather more than two diameters.

The only known species and type of the genus is M. Muiri, N. E. Br., a native of the Klein Karoo, in South Africa.

The name is derived from the Latin, *mentum*, a chin, and *calyx*, a cup or calyx, because the calyx, when in bud, has a sort of chin to it.

The affinity of this fine and very distinct genus is not very evident, but as its vegetative characters more resemble in form those of the genus Pleiospilos than any other, I place it immediately before that genus, although its floral structure is entirely different. The manner in which the entirely superior ovary of the flower becomes half inferior when in fruit is very remarkable; I have not observed any other similar instance, either in this group of plants or in the many thousands of flowers I have dissected belonging to other orders. The somewhat chin-like base of one of the larger calyx-lobes is also unlike anything I have seen in any other member of this group of plants.

1. M. Muiri, N. E. Br. (Fig. 128).—Leaves unequal, spreading, the larger of the pair 2–2½ inches long, 14–21 lines broad at the base and narrowing from thence in a deltoid manner to a more or less acute apex, 9–12 lines thick at the base and 10–18 lines thick at the deeply-keeled apical part; the smaller leaf 1½–2 inches long and only 4–7 lines thick at the apical part, not so deeply keeled as its fellow, otherwise similar in shape; both are flat on the face, the larger one with a slight oblique twist (not represented in the figure), compressed and deeply keeled or dilated and more or less incurved-hooked (at least when young) at the apical part, the smaller leaf being neither hooked nor deeply keeled at the apex; when young, the two leaves are closed together, and then somewhat resemble the beak of an eagle in form; substance firmly fleshy; surface smooth and velvety to the touch, microscopically puberulous, dull green, but probably of a brownish or greyish tint under natural conditions, not dotted. Flower always produced in front of the new pair of leaves. Pedicel 1½–2 inches long, erect, slightly compressed and somewhat 2-edged, 3–3½ lines broad and 2½ lines thick at the upper part, slightly tapering downwards, velvety-puberulous, green. Calyx in bud and viewed from the side with a somewhat chin-like base in front, velvety-puberulous; lobes ascending-spreading, the two larger 9–13 lines long and 4½–5 lines broad at the base, narrowing to an acute apex, keeled down the back and more or less concave and hooked or incurved at the apex; the four smaller lobes 5–6½ lines long, ovate, obtuse, with membranous edges. Corolla 1½–2 inches in diameter, expanded in the day-time, more or less closed at night, and lasting 10-14 days, pleasantly fragrant; petals numerous, free, spreading, in about two series, rather lax, about 9 lines long and ¾-line broad, linear, acute, pure white according to Dr. Muir, but in one of the living flowers seen the white was faintly tinted with pinkish-mauve, with a darker midline, and the other white without the pinkish tinge, so probably the colour varies, as it does in many species belonging to the other genera. Stamens somewhat loose, 2½–3½ lines long; filaments white; anthers milk-white. Glands of the disk blackish-green. Stigmas 6, spreading, about 1¾-line long, stoutly subulate, acute, somewhat bristly-plumose, green. Ovary in the flower entirely superior, with a broad base, becoming partly inferior in fruit! Green, with 6 stout ribs, 6-celled. Capsule as described under the genus, half inferior, about 5 lines in diameter when closed and 7 lines in diameter when expanded; valves pallid within, with honey-coloured, expanding-keels; the cells, instead of being superior and entirely above the level of the base of the inner side of the calyx-lobes as they are in the ovary, are (in the capsule) inferior and entirely below the level of the inner surface of the base of the calyx-lobes, the valves alone being now above that level. Seeds less than ½-line long, ovoid, smooth, pallid, with a brown point.

Riversdale Division: In the Klein Karoo, among white stones, flowering in September and October, 1,200 feet above sea level, Muir 3,892!

Described from a living plant sent to me by Dr. J. Muir, this being another of the many interesting new species that he has discovered, which shows how rich South Africa must still be in interesting undiscovered plants.

I do not know how this plant behaves in South Africa, but from Dr. Muir's statements about it, I imagine that the flowers become fully developed from their first appearance in about two months. With me however, the process of their development has been exceedingly slow; I first saw signs of flower-buds at the end of August, 1926, but it was not until the fifth of March, 1927, that the first flower opened, being over six months in developing! Evidently this is the effect of the colder temperature of our climate, and I expect that the flower-buds appearing with the new pairs of leaves at the end of February, 1927, will develop into flowers before they are six months old, as the warmer season is now approaching (this is written on March 14, 1927). This plant appears to flower very freely, as fresh flowers are appearing on every new growth on my specimens.

My flowering plant of this species has only two growths upon it, each with one flower. The first flower was of a decided pinkish-mauve tinge and the second almost pure white. The first flower, however, expanded during very dull, sunless weather, while the second one had several days of bright sunshine upon it, so that it is possible that the change in the amount of light was the cause of the change in colour. My only other plant did not develop its flowers.

Fig. 128 represents at A, one of the two growths on the plant. B, a mature flower-bud nearly ready to open, showing the prominent chin-like base of one of the calyx-lobes. C, a flower as it appeared in dull weather; in bright sunshine the petals and shorter calyx-lobes are much more spreading, although the larger calyx-lobes remain in the position I have represented. D, a longitudinal section through the flower, showing its structure, enlarged slightly more than two diameters (all the other figures are of natural size). E, a longitudinal section through a ripe fruit showing that the ovary in ripening becomes half inferior! Probably this is due to the enormous shrinkage of the central watery tissue of the pedicel that takes place during the ripening. F, is a young seedling, showing the united cotyledons and the first pair of leaves, which are minutely puberulous. *N. E. Brown.*

(*To be continued*).

FLORISTS' FLOWERS.

CHRYSANTHEMUMS.

CUTTINGS inserted during January and February should be potted so soon as they are well-rooted. By the time these notes appear it will be quite safe, in all except the most exposed districts, to place all rooted plants in cold frames. Provided frost can be excluded, they will continue to make sturdy growth under cool treatment. If frost threatens, mat the frames early in the evenings.

The power of the sun is increasing every day, and careful attention must be paid to ventilating the frames. Newly-potted plants should be kept in fairly close conditions for a few days, and if the sun is very bright it will be advisable to shade the plants for a few hours at mid-day until they have recovered from the effects of removal.

Ventilating is an important cultural detail at this time of the year in the cultivation of these plants. The more fresh air they get the better, provided they are protected from frost and cold draughts. The frame should be in a position where the maximum amount of light is obtainable with the minimum of wind, especially from the east.

A little intelligent management of the lights will usually counteract the evils arising from cold winds. If the wind is in the east, tilt the lights on the west side, and *vice versa.* In the daytime the thermometer should be the guide as to how much ventilation is required. If it registers 40° to 45° ventilation will be necessary. If by reason of the sun's rays the mercury continues to rise after ventilation has been given, increase the amount of air. Overhead spraying has a beneficial effect on plants that have drooped while the ventilators have been open.

The more forward plants will, in many instances, now be ready for transferring to six-inch pots. They should be repotted before the roots form a mass at the bottom of the three-inch pots; plants that are allowed to become root-bound in small pots invariably suffer when transferred to larger receptacles.

A suitable compost for present use may be made of four parts fibrous loam, one part thoroughly rotted manure, one part leaf-mould, one part powdered mortar rubble, a half-part wood-ashes, and a six-inch potful of bone-meal to every barrow-load of the compost. The use of sand must be left to the judgment of the operator; if leaf-mould, wood ash, and lime rubbish are used as directed, little or no sand will be required. The loam, manure, and leaf-mould should be chopped, and not riddled.

Mix the compost thoroughly and stack it in a heap for a few days before using it. Before commencing to repot them carefully examine the plants to be dealt with, and pick out any that are approaching dryness at the root. These should be well watered, and stood aside to drain before being repotted. To attempt to repot a Chrysanthemum while it is dry at the roots is inviting failure.

At this potting, well-soaked, new pots should be used if they are available, or, if not, thoroughly clean, old ones. If dirty pots are used, the soil and, incidentally, the roots, will stick to the sides of the pot when the plant is turned out for the final potting. Use about an inch depth of drainage, and cover this with a little of the lumpy portions of the compost. The plants, when potted, should be slightly lower in the pots than they previously were. Ram the compost fairly firmly with a blunt potting stick, but take care not to damage the roots of the plants. Return them to the frames and try to prevent them from flagging for a few days. As intimated above, careful ventilation, overhead spraying, and possibly some shading will accomplish this end.

A rough and ready method of dealing with decorative varieties is to stop the plants at the time of repotting them. This is a great mistake, and has a weakening influence on the shoots which form in consequence of the stopping. Stopping should not be attempted for a few days prior to potting, nor for eight or ten days subsequently. *James A. Paice.*

LILIES IN SCOTLAND IN 1926.

ON the whole, last season was a very satisfactory one in regard to Liliums, and one or two uncommon species flowered for the first time with me. These notes refer to a garden in East Lothian, where the Lilies will flower this summer for the last time as they will be transferred to fresh quarters in the Spey Valley, in Morayshire, in the autumn. I believe that climate and soil conditions will be more favourable to the cultivation of these Lilies in their new home, and from results already noted in that favoured county, I am convinced that many of the species will establish themselves satisfactorily.

In East Lothian, L. regale is the finest of the Lilies, chiefly because it has been established the longest. It was the first to be grown, and its success led to the introduction of other species. The bulbs I write of are now fourteen years old, and have been in their present quarters for ten years. During the latter period they have been disturbed only once. That was in the autumn of 1925, when the plants were lifted, separated and replanted the same day. Many of the bulbs were sixteen to seventeen inches in circumference, and my record number of flowers to a stem is thirty-three. The stems attain a height of about six feet, and fifteen flowers to a stem is quite common. Last year some of the clumps had a dozen stems. The Lily resents disturbance. In December, when I lifted some bulbs, I found they had roots like a rat's tail running deeply into the soil, and these roots appear to be active all through the winter.

My method of growing this Lily is to top-dress the bed with leaf-mould in spring so soon as the stems appear above the ground. When the stems appear through the mulch another dressing is applied and a little bone-meal is added to it. The total depth of the dressing is about six inches. The bed is dotted with Golden Yews, now about six feet in height, and is fronted with Rhododendrons. When the stems have ripened up in autumn the mulch of leaf-mould—then a perfect network of stem roots—is removed; the surface of the bed is lightly forked over and dressed with kainit at the rate of about three ounces to the square yard, and the surface ground left fully exposed throughout the winter. I do not believe in mulching for winter protection; the bulbs must have open soil conditions to keep them in a healthy state. Mr. Coutts, of Kew, is a great believer in what he terms "root association" for Liliums, and I fully agree with him. Hence the Yews and Rhododendrons in the bed of L. regale. If this Lily can be planted so that it will not be disturbed for years, it establishes itself magnificently, and is, undoubtedly, one of the noblest of the species.

I planted L. auratum var. Crimson Queen in pots in 1925, but this gorgeously-coloured Lily flowered well in the open ground last year and was a great sight in late September. I think that I have managed to get it established as the bulbs planted were, fortunately, not too large to begin with. The flowers are as large as those of L. auratum; in the centre of each petal there is a band or streak of deep crimson, and, that colour flushes over the whole of the flower. It is a striking Lily and is, perhaps, the most grandly-coloured of all. Mr. Grove informed me that he thinks it is really L. cruentum, and that it was grown some years ago by Isaac Davies, of Ormskirk. It is a Lily worth persevering with.

My present stock of L. centifolium (Farrer's 716) consists of three-year-old bulbs raised from seeds. The stems all came blind last year, but they should be strong enough to flower this season. A seedling from this species crossed with L. regale flowered last year for the first time and produced three lovely trumpets. I prefer not to say more about this at present, but hope to have it photographed during the coming season. It appears to be a Lily with a grand constitution.

L. Alexandrae flowered here last season for the first time. It is a dwarf grower, but its white flowers were almost as large as those of L. auratum. It is a lovely Lily with a delicious fragrance, and appears to be well worthy of a place in the garden. It is said to be a white form of L. japonicum (Krameri), but Mr. Grove believes it to be a form of L. longiflorum. I think that is correct.

L. japonicum, ordinarily called L. Krameri, was practically hopeless to establish when imported bulbs were planted, but I raised a small batch from seeds, and some of these flowered last year. I was able to save a nice lot of seeds which I have sown this season. The colour of the flowers, a soft rose-pink, is unique amongst Lilies. L. japonicum has the reputation of being a difficult species to grow in the open, but the trouble has been caused by the lack of sound, healthy bulbs. Imported bulbs, in my experience, have always arrived shrivelled up and, in many cases, diseased. L. japonicum revels in a top-dressing, such as is applied to L. regale.

L. rubellum thrives amongst a colony of Arundinaria (Bambusa) pygmaea. This little Lily is somewhat of the colour of L. japonicum, but altogether lacks the dignity of that exquisite species. I wanted a dwarf plant to act as a covering for the roots of L. rubellum and I selected the little Bamboo. Its dwarf, spreading growth is just the thing for this Lily.

L. Willmottiae, raised from seeds, is a Turk's Cap that is assured of a great future. My plants, now five years old, give from ten to fifteen flowers on a stem. This species from Western Hupeh is also a stem-rooter, and a mulch is imperative. The roots must be screened and, as in the case of L. rubellum, I use Arundinaria pygmaea for the purpose very effectively.

L. cernuum is a dwarf Siberian Lily of Martagon type and reminds one of L. tenuifolium. It flowered here last year. Its colour may be described as a deep rose; the stems are very slender, but quite strong enough to support the flowers. I hope to see this Lily in better form this season, as the bulbs I received were not over strong.

L. pomponium, the true form, flowered also for the first time here last year. The bulbs had been planted for three years but had not flowered previously. They were collected bulbs and, I think, had been too long on the journey which accounted for their weakness. I have now, however, an abundance of home-saved seeds which have been sown and germinated very well. This Lily rivals the brilliant L. chalcedonicum, and it comes into flower very much earlier. L. pomponium requires no top-dressing and it appears to thrive best when planted shallowly, like L. testaceum.

I am growing a batch of L. testaceum, so that I can be assured of healthy bulbs for transference to the north in due course. All Lilies sent to Morayshire to be established there, with the single exception of L. testaceum, will have been raised from seeds. The garden there is free from disease, and no imported bulbs will ever enter its gates, unless they undergo a period of quarantine elsewhere. No risks will be run. It is for that reason that I have raised batches of L. auratum, its variety platyphyllum, L. Willmottiae, L. pomponium, L. rubellum, L. monadelphum, L. regale, L. chalcedonicum, L. Parryi, L. Sargentiae, and many others from seeds. Some of the seedlings of L. auratum flowered last year and there is a variation in colour. I found the form known as L. auratum rubro-vittatum amongst the seedlings. L. auratum platyphyllum will flower this year from seed, and it will be interesting to see if there is any variation from the type. I should like to come across a rubro-vittatum form of this grand Lily!

L. philippinense formosanum flowered in late September, and some blooms in evidence in October were destroyed by frost. These flowers were entirely out of season. The seeds were sown in the spring of 1925, and the seedlings were planted in their flowering quarters in July of that year. They made little growth that season, but last year they grew strongly and flowered as stated. I see that fine bulbs have been formed, and in many cases there is a tiny bulb at the foot of the old stems.

L. Farreri is one of the loveliest of the Turk's Cap Lilies, and has been well-named the Marble Martagon. The white flowers with their blue veins are extremely beautiful. The variety Duchartrei with its rosy coloured flowers is also pretty, but it lacks the charm of the superbly graceful L. Farreri. Both were raised from seeds and, so far, I have seen no variation.

L. Sargentiae comes into flower just after L. regale. Like the latter, it is grateful for a mulch of leaves. It forms abundance of bulbils at the axils of the leaves. Azalea malvaeflora is used as a shade for the roots. I am not very enthusiastic about this species; it seems to lack the refinement of L. regale, and when once L. centifolium is procurable in quantity I do not think that L. Sargentiae will be wanted.

Species due to flower this year from seeds are L. Parryi, L. philadelphicum luteum, L. Martagon album, L. Martagon dalmaticum, L. Martagon Cattaniae, L. Davidii, L. Henryi, L. sutchuenense, L. roseum, L. medeoloides, L. myriophyllum, L. amabile, L. Roezlii rubrum, L. canadense, L. croceum, L. candidum, L. philippinense formosanum × regale, L. centifolium × Willmottiae, L. japonicum × Willmottiae, L. centifolium and L. Kelloggii. *George M. Taylor, Edinburgh.*

VEGETABLE GARDEN.

ONIONS.

The Onion is one of the most important crops of the vegetable garden, and for a supply for the various purposes, different methods are adopted. Onions have an advantage over many other vegetable crops in that they may be grown on the same ground for a number of years without detriment to the crop other than caused by pests and diseases. Once the soil has been brought to a high state of cultivation, it may easily be maintained in a suitable condition for this crop each successive season. Where Onion-fly is prevalent, change of site is advisable as one means of lessening the chances of attack. Sowing is divided into two main periods, spring and autumn.

The spring sowing should be done on the first favourable opportunity when the soil can be brought to a good tilth at the end of February or early in March; the condition of the soil at the time of sowing is very important. Sow the seeds in drills made twelve to fifteen inches apart, taking care not to bury them deeply.

As the Onion-fly is such a serious menace to plants from this sowing, preventive measures should be undertaken in good time. Probably one of the best deterrants to the fly is a weekly dusting of soot, commencing about the end of April and continuing until the middle of June. This will greatly stimulate the growth of the plants and make the immediate surroundings very unpleasant for the fly. Commenced in good time and performed at regular intervals, this treatment should prove effective.

A very simple matter, but one of considerable importance, is that the rows should be kept free from weeds, especially when the Onion plants are small, as the removal of large weeds may cause the Onion seedlings to be uprooted, making access for the fly easy. Thinning will need to be done gradually in case the fly should prove troublesome: on the other hand, it must not be either delayed too long, or done in such a manner as to cause much soil disturbance. The thinnings, when allowed to develop to a fair size, will be useful for salads. A distance of four to eight inches between the plants, according to variety, and requirements, is usual.

Further treatment consists in keeping the crop clean in all respects, and excessive feeding must be guarded against or the keeping qualities of the bulbs will be impaired. The bulbs should be thoroughly ripened before being stored in a dry, airy structure, where a comparatively low temperature can be maintained.

There are numerous varieties in commerce and most growers have their special favourites. Ailsa Craig, Cranston's Excelsior and Premier, are all of a similar type, and are all popular with growers. Another good sort is Bedfordshire Champion. Others of a smaller, but excellent keeping type, are Australian Brown, Brown Globe and James' Long-Keeping. Where a flat Onion is preferred, Giant Zittau, Rousham Park Hero and White Spanish may be recommended. Southport Red Globe is one of the best of the red varieties.

Onions for pickling should be sown fairly thickly late in April, on ground that is not too rich and little or no thinning is necessary. Covent Garden Silver Skinned Pickling is a desirable variety.

Autumn sowing, where it is possible to adopt it, offers several advantages, these being (1) the Onion fly rarely, if ever, attacks plants from this sowing; (2) thorough ripening of the bulbs is more certain in late districts, or where the rainfall is unduly heavy; (3) the plants attain a usable size quicker than those sown in the spring, thereby filling the gap that naturally exists between the end of one season's crop and the ripening of the next; (4) larger bulbs are obtained by the longer season of growth than from those grown entirely in the open from a spring sowing; (5) an early supply from the open for salad purposes is procured.

As it is inadvisable to have ground too rich for this sowing, any soil in good heart that has just been cleared of a crop, such as Peas or Beans and has been dug to the full depth of the spade, will do quite well, bearing in mind that it has only to serve the purpose of a seed-bed during the winter.

Two important points to bear in mind are that the soil should not be too rich or the sowing made too early, or bolting will take place the following spring. The time of sowing necessarily depends on the soil and locality, but, generally, the last week in August or the first week in September is quite early enough for the south.

Sow in rows made twelve inches apart, in an open situation on well-drained land.

The plants should remain in the seed-bed until early March, when they can be planted in rows twelve inches to fifteen inches apart, allowing six to eight inches between the plants in the rows. To minimise the risk of bolting large seedlings should not be chosen for planting, those of medium vigour giving the best results. Deep planting should be guarded against. Should bolting occur, when the plant is developing a flower head, cut through the solid part of the junction of the stem and flower-head. Although plants treated in this manner do not give first-class bulbs they will be reasonably good. Extra large plants from this sowing may be used either for salad or planted for use when only partially developed.

The choice of varieties for autumn sowing depends on the purpose for which they are intended. If intended to be grown to full maturity for storing, with a view to keeping as long as possible, those recommended for spring sowing are suitable. If the crop is to be used quickly when fully grown, the Lisbon, Rocca or Tripoli types are preferable. Two varieties of comparatively recent introduction which distinguished themselves in a large trial of autumn-sown Onions at Wisley during the years 1916-17, are Autumn Triumph and Froxfield, and these are excellent in all respects.

Where a portion of the crop is grown especially for salad purposes the seeds may be sown about mid-August and the young plants will benefit from a light dressing of some quick-acting fertiliser early in the year. The white varieties or any of the quick-growers are suitable for this purpose. Young Onions for salads may be raised in boxes under glass at any period of the year.

Different methods are employed for the production of extra large bulbs. For this purpose it is necessary to have a long season of growth and varieties which are capable of growing to a large size. The usual method is to sow seeds under glass in gentle warmth during January, giving the plants similar treatment to half-hardy annuals, and when thoroughly hardened plant them in the open early in April.

Varieties of the Ailsa Craig type are suitable for this purpose. Although the varieties mentioned are mostly old and well-known, it is interesting to note that the majority received some recognition in the various trials of this vegetable that have been conducted at Wisley during the past ten years.

In conclusion, I would emphasise the desirability of obtaining European-grown seed of good strains from seedsmen who may be relied on to supply varieties true to name. *J. Wilson, Wisley.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Sunlight Rays in Glasshouses.—Mr. Allen Falconer's remarks in *The Gardeners' Chronicle* on the above subject interested me greatly, for I, too, have had some experience of gardening under the inclement climatic conditions which prevail in the locality he refers to, and I can fully endorse his statements regarding the difficulty of raising sturdy seedlings during the early part of the year. Provided the cost is not prohibitive it would appear that the use of these lamps may possibly revolutionise the production of early produce, but I am inclined to think that the cost of installation and running may discount any advantage gained in the matter of earliness. Perhaps Mr. Falconer can supply us with some details respecting the initial cost of installing the apparatus, and also the current used per lamp per hour. In any case, it is a most interesting experiment, and the results obtained after further trial will be worth while recording. Experiments are being made at Kew and other centres with the use of Vita glass for glazing glasshouses. As most readers know, this glass permits the passage of the ultra-violet light rays, and the same advantages are claimed to be obtained by its use as Mr. Falconer hopes to get with sunlight rays, viz., the raising of earlier and stronger seedlings and plants. The initial cost of glazing a structure with this glass is somewhat high when compared with ordinary glass. At the present time, I believe Vita glass costs somewhere about two shilling per square foot, but I have no doubt that its cost will be reduced substantially when its manufacture is undertaken on a larger scale. It has been amply demonstrated that children and animals living in rooms glazed with Vita glass are benefited thereby, so that it only seems reasonable that plants will also be benefited by its use. *T. H. Everett.*

SOCIETIES.

ROYAL HORTICULTURAL.

April 5 and 6.—All the available space in the Royal Horticultural Hall, Westminster, was well filled on these dates; indeed, many exhibitors had to be content with much less space than they applied for. Orchids were again shown extensively and made gorgeous and graceful displays, the superb group of Dendrobiums shown by Baron Bruno Schröder thoroughly meriting all the praise bestowed upon it; the Orchid Committee recommended a Gold Medal for this group, and a Silver-Gilt Lindley Medal for the high cultivation it exemplified. Daffodils and Tulips were presented in large groups, while Azaleas, Cinerarias, Schizanthuses, Roses, Carnations, flowering trees and shrubs, alpine plants and early border flowers all contributed to the beauty and interest of the meeting. The Orchid Committee granted one First Class Certificate and eight Awards of Merit; the Narcissus and Tulip Committee, two Awards of Merit; and the Floral Committee eleven Awards of Merit.

Orchid Committee.

Present: Mr. C. J. Lucas (in the chair), Mr. Gurney Wilson, (Hon. Secretary), Mr. Stuart H. Low, Mr. Wilson Potter, Mr. E. R. Ashton, Mr. R. G. Thwaites, Mr. H. H. Smith, Mr. R. Paterson, Mr. J. Cowan, Mr. T. Armstrong, Mr. A. McBean, Mr. Charles H. Curtis, Mr. G. E. Shill, Mr. Fred K. Sander, Mr. J. Cypher, Mr. H. G. Alexander, Mr. A. Dye, Mr. Fred J. Hanbury and Mr. R. Brooman White.

Lindley Medal.

The Committee recommended a Silver-Gilt Lindley Medal for the magnificent Odontoglossum Purple Emperor. In the opinion of many experts this is the finest Odontoglossum yet raised. It was shown by the Exors. of the late Mr. H. T. Pitt.

First Class Certificate.

Cymbidium Pauwelsii, Ankersmit's var.—A lovely flower of large size, good form and fine substance, and probably the finest variety of C. Pauwelsii yet seen. The colour is light greenish-yellow, with a suffusion of pink and faint veinings of rosy bronze. Lip, cream-coloured with rich, red-brown markings at the apex. Shown by Messrs. Cowan and Co.

Awards of Merit.

Odontioda Dovere var. majestica (*Oda. Joan × Odm. illustrissimum*).—A handsome, large-flowered variety, with rich red flowers, marked with rose-purple at the margins and also across the body colour. Lip deep red and rose, with golden disc. Shown by Messrs. J. and A. McBean.

Odontoglossum plumptonense var. lilacina.—The principal colour seen in the large flowers of this variety is deep lilac, but there are white bases to the sepals and petals, and a white apex to the gold, disked lip. Shown by Mr. J. Evans, Colwyn Bay.

Brasso-Cattleya speciosa magnifica.—An exquisitely beautiful form, with flowers of large size. The colour is pale lilac-pink, deeper at the fringed apex of the lip, where it harmonises with the clear, light orange-yellow of the throat. Shown by Messrs. H. G. Alexander, Ltd.

Cattleya Roseary (*C. Schroderae alba × C. Lord Rothschild var. alba*)—A lovely hybrid with wide, white petals, cream-tinted sepals, and a lip that is soft orange-yellow, with white frilled margin and a touch of purple at the apex. Shown by R. Gerrish, Esq.

Odontoglossum muralis, Gerrish's var. (*Penelope × Clovis*).—A handsome variety with distinctly marked flowers. The sepals and petals are red-brown over the basal halves, and soft lilac on the upper halves; lip deep chocolate-red at the base and pure white at the apex. Shown by R. Gerrish, Esq.

Odontioda Metis (*Oda. Brewii × Odm. eximium*).—A bold, orange-red hybrid with a few faint markings of yellow; lip orange-red, with central brown area, and golden disc. Shown by R. Gerrish, Esq.

Brasso-Cattleya Springtide var. Ethel N. Satow (*C. Mossiae × B.-C. Maronii*).—A superb Orchid with an immense flower of delightful purplish-mauve colour; the big, broad, fringed lip is of similar colour to the sepals and petals at the base and margins, but the central area is yellow, shaded with orange, the yellow veinings running back into a deeper purple shade around the column. Shown by Fred J. Hanbury, Esq., Brockhurst, East Grinstead.

Cymbidium Pauwelsii, Brockhurst var.—This was represented by a fine plant carrying two large spikes. The flowers are large, fawn-coloured, suffused with pink, the lip being buff-coloured with deep red-brown markings at the apex. Shown by Fred. J. Hanbury, Esq.

Groups.

Baron Bruno Schröder (gr. Mr. G. E. Shill), Dell Park, Englefield Green, showed beautiful Dendrobiums, splendidly grown and finely arranged. The exhibit was a very large one, and consisted chiefly of Dendrobium Model and seedlings therefrom; the original D. Model was included, and we thought it as fine as any of its many beautiful progeny. There were scores of plants, all abundantly flowered, and each one was allowed to fully display its charms. Within this exhibit there were two contrasting groupings of the yellow Dendrobium Thwaitesiae, equally well-grown and profusely flowered, while at a higher level towards the back of the display were sheaves of spikes of Calanthe Baron Schröder, both dark and light forms.

R. Gerrish, Esq., The Manor, Millfield, Salisbury (gr. Mr. W. Sorrell), contributed a beautiful group of Orchids and staged the plants admirably. Odontoglossums, Odontiodas and Cymbidiums were very largely represented, and several plants gained awards. Odontoglossum Proteus, O. crispum Marjorie, and O. eximium were particularly good, while Cymbidium Ceres, C. Pauwelsii, Brasso-Cattleya Rosita, Laelio-Cattleya Hassallii alba and Cattleya Wottersiana (Queen Mary × Rajah) were also conspicuously good.

With all their plants set up in a delightful manner so that each could be seen as an individual, Messrs. H. G. Alexander, Ltd, exhibited a fine group wherein choice Cymbidiums, Odontiodas and Dendrobiums were prominent subjects. Dendrobium Thwaitesiae was good and there was a capital specimen of the fine old Sophronitis grandiflora with eighteen blooms. The principal Cymbidiums were C. Redshank, C. Goosander, C. Plover var. Puck, C. Redstart—very fine, C. Flamingo and C. Pauwelsii. Odontioda Charlesworthii, O. Bradshawiae, Holford's var., and O. Radiant gave touches of brilliant colour, as also did Brasso-Laelio-Cattleya Golden Horn, with ten orange-tinted, yellow flowers. Odontoglossum Anzac, of rich yellow, O. Faustina, O. crispum Zoroaster, O. Juno, and Cattleya Tityus var. Gloriosa were other showy plants in this fine display.

Messrs. Cowan and Co. contributed a grand lot of Cymbidiums carrying large, handsome spikes. Of these C. Ceres was a splendid form, and so was C. Pauwelsii aureum, the splendid C. P. Ankersmit's var. and C. P. Golden Prince, and C. Corona. Dendrobium atro-violacea, Cypripedium Hesta, Miltonia Bleuana, Odontioda Juno, O. Grenadier and O. Murillo, with Odontoglossum Alastor and O. Colinge, were other very attractive Orchids.

E. R. Ashton, Esq. (gr. Mr. C. Kent), Broadlands, Tunbridge Wells, submitted a lovely specimen of Sophronitis grandiflora carrying thirty flowers (Cultural Commendation), Dendrobium Brymerianum, D. atro-violaceum, the fine old Odontoglossum triumphans var. Lionel Crawshay, Odontioda Fairy Queen, Laelio-Cattleya Faust, and Lycaste Balliae, among other good things.

Dendrobium Devonianum and the allied D. Freemanii were conspicuously beautiful in Messrs. Sander's group, where also Cymbidium Erica var. Eclipse and the deep, ruddy-bronze C. Magali Sander var. Surprise, arrested attention. Laelio-Cattleya Royal Sovereign, Oncidium pulchellum, Ada aurantiaca and Dendrobium Wardianum were included, with several Odontoglossums and Odontiodas.

Messrs. J. Cypher and Sons exhibited a small group of Cymbidiums, Odontoglossums and Dendrobiums. Notable examples shown were of Dendrobium atro-violaceum, D. crepidatum (a fine form), Maxillaria Harrisoniae, Odontoglossum Edwardsii, Laelio-Cattleya Dominiana and the curious, yellow Eria pannea. Mr. H. Dixon contributed a small group containing Dendrobium Thwaitesiae, Cypripedium Cupid and Odontoglossums. Messrs. Sutton Bros. exhibited Lycaste Skinneri, Odontoglossum triumphans and Cypripedium Maudiae in a small corner group.

The large exhibit from Messrs. Charlesworth and Co. contained a fine centre grouping of Odontoglossum crispum in variety, and around this was displayed capital specimens of Wilsonara Wendy, Vuylstekeara Lutetia, Cypripedium niveum, C. Morganiae burfordiense, Odontioda Karao, Odontoglossum Regium, Sophro-Laelio-Cattleya Meuse, Brasso-Cattleya Olena and many other fine Orchids.

In Messrs. Stuart Low and Co.'s group a few of the more attractive subjects were Dendrobium Farmeri, Cymbidium Devonianum, Brasso-Cattleya Hans Hunter, B.-C. Milo, Laelio-Cattleya Jacquinetta, the old and still beautiful Cochlioda Noezliana and Odontoglossum Zena.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. Charles E. Pearson, Mr. A. Turner, Mr. H. J. Jones, Mr. William Howe, Mr. D. Ingamells, Mr. J. M. Bridgeford, Mr. Donald Allan, Mr. Hugh Dickson, Mr. M. C. Allwood, Mr. R. Findlay, Mr. E. R. Janes, Mr. A. E. Vasey, Mr. James B. Riding, Mr. W. B. Gingell, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mrs. Ethel M. Wightman, Mr. Courtney Page and Mr. Cartwright (Secretary).

Section B.—Mr. Gerald B. Loder (in the chair), Mr. W. J. Bean, Mr. R. C. Notcutt, Mr. George Harrow, Mr. G. Reuthe, Mr. Amos Perry, Mr. Eric M. Marsden-Jones, Mr. Reginald Cory, Mr. A. Williams, Mr. L. R. Russell, Mr. E. H. Wilding, Mr. G. Yeld, Mr. A. Bedford, Mr. T. Hay, Mr. Charles T. Musgrave, Mr. F. G. Preston, Mr. W. G. Baker, Mr. Clarence Elliott, Mr. W. B. Cranfield, Mr. E. A. Bowles, Mr. R. D. Trotter and Mr. N. K. Gould (Secretary).

Awards of Merit.

Acacia fimbriata.—According to the *Index kewensis,* the correct name of this Mimosa is A. prominens. It is a very graceful species furnished with narrow, dark green leaves and bearing plenty of short spikes of yellow flowers. Shown by the Director, Royal Botanic Gardens, Kew.

Arctotis breviscapa var. Durns.—In *Index kewensis,* Arctotis breviscapa is recorded as a synonym of A. leptorhiza, while Nicholson's *Dictionary of Gardening* states that it is a synonym of A. speciosa. On June 29, 1926, the species, when shown by Mr. T. Hay, received an Award of Merit. The variety Durns is a more robust plant. The pinnate leaves are quite attractive and the sturdy flowers are of rich cardinal red, with lines of a deeper shade of colour. An illustration of A. breviscapa was given in *The Gardeners' Chronicle* of July 10, 1926. Shown by Messrs. B. Ladhams, Ltd.

Arctotis scapigera.—The name of this species must be considered to be provisional, for according to the *Index kewensis,* A. scapigera should be A. acaulis, but a certain amount of confusion exists in the genus. Mr. T. Hay informs us that he received seeds from South Africa under the name A. acaulis, but his plants differ from that species as grown at Kew. The seedlings are variable in habit, foliage and colour of the flowers, though the general colour of the latter seemed to be a bright orange with a darker zone, but the colour was dull on the older flowers. Shown by Mr. T. Hay, Hyde Park.

Auricula Duchess of York.—A very handsome Alpine variety. The large, perfectly round flowers are of rich, velvety plum-purple colour, paler at the margins of the petals, and have a broad, pale yellow zone. Shown by Mr. **James Douglas.**

Auricula Prince Henry.—This is a beautiful Show Auricula of uncommon colouring. A vigorous plant, well-furnished with mealy leaves and bearing a stout spike, was shown. The colour is satiny mauve, and the flowers have a broad, white zone. Also shown by Mr. **James Douglas.**

Camellia Lady Clare.—A very handsome semi-double variety, bearing flowers as large as those of C. reticulata. The colour is a medium pink, and it appears to be a vigorous shrub. Shown by **Lionel de Rothschild,** Esq. (gr. Mr. A. Bedford), Exbury, Hants.

Carnation Mrs. A. J. Cobb (see Fig. 124).—This handsome, velvety-crimson-maroon variety was awarded the *Daily Mail* Cup as being the best new fragrant Carnation at the show of the British Carnation Society last week (see page 238). Shown by Mr. **A. F. Dutton.**

Carnation W. H. Page.—A medium-sized, Perpetual-flowering variety, which appears to be very free-flowering. The flowers are bright pink with lines of a deeper shade of the same colour. The blooms are well-formed and have lightly serrated edges; the calyx is non-splitting. Shown by Mr. **W. H. Page.**

Prunus incisa.—A dwarf species from Japan which produces clusters of pendulous, white flowers which open widely. Shown by Mr. **Collingwood Ingram,** Benenden.

Prunus serrulata Yoshira (*Yedoensis*).—This is a graceful little tree, bearing plentiful clusters of rounded, single, pale blush flowers. Shown by Mr. **R. C. Notcutt.**

Rhododendron carneum.—This handsome, evergreen species was discovered by Browne in the Northern Shan States, North Burma, at an altitude of 7,500 feet, in 1912. It belongs to the Maddenii series and makes a bush three feet to four feet in height. The large, ovate leaves have plentiful greyish spots on the upper surface and are silvery below. The flowers are large, open widely and are produced in a loose truss. They are of flesh-pink colour. Shown by **Lionel de Rothschild,** Esq.

GROUPS.

Immediately inside the hall, Messrs. **L. R. Russell, Ltd.,** arranged a large group of Azalea indica varieties which provided a fine display of colouring. The many plants illustrated the various methods of growing this useful greenhouse flowering shrub, and the exhibit comprised many of the best varieties.

Some tall plants of Acacia Riceana, A. spiralis and A. leprosa formed a good background to a collection of Hippeastrums, Grevillea alpina and Camellias staged by Messrs. **Stuart Low and Co.** Messrs. **R. Gill and Son** showed an attractive collection of Rhododendrons, chiefly of the type grown in the warmer parts of the country. They also exhibited sprays of several shrubby Veronicas and a batch of St. Brigid Anemones.

Rhododendrons were also shown by Mr. **G. Reuthe,** who had good trusses of R. Elsae and R. arboreum varieties. He also staged well-flowered sprays of Stachyurus praecox and various alpines. In association with profusely-flowered Azalea Mollis hybrids and Azalea Hinomanya, Messrs. **Wm. Cutbush and Son** showed Tulipa praestans of brilliant colour.

Rock gardens, appropriately planted, were made by various exhibitors. Messrs. **W. H. Rogers and Son** made a special feature of Daphne Cneorum, and also had various seasonable alpines. Messrs. **M. Prichard and Sons** gave the central place to a pretty drift of Asperula suberosa, and also used Aubrietias and Saxifrages effectively. Messrs. **Hodsons, Ltd.,** had good breadths of Primula denticulata and P. Juliae, while in the background they planted Wistarias, Azalea malvatica and other shrubs.

Tulipa Clusiana, various Sedums, Saxifrages, Anemone graeca hybrids and Drabas were utilised by Messrs. **Tuckers, Ltd.** The Misses **Hopkins** and Mr. **J. Robinson** had interesting little rock garden exhibits. In a well-designed rock garden Mr. **Clarence Elliott** planted a large quantity of Primula pubescens Mrs. J. H. Wilson and also well-placed sweeps of Viola gracilis Golden Wave and Primula marginata Linda Pope.

In their rock garden ,Messrs. **Waterer, Sons and Crisp** planted Erythronium Dens-canis E. D.-c. White Beauty, E. Hendersonii, E. revolutum var. Johnsonii and various Primroses, and in the background placed well-flowered Forsythias, Spiraeas and other flowering shrubs. Messrs. **B. Ladhams, Ltd.,** showed Caltha palustris fl. pl., Omphalodes cappodocica, Primulas in variety and early Irises. Messrs. **Maxwell and Beale** gave prominence to Erica carnea and Gentiana acaulis; while Messrs. **Jeans and Trowbridge** had an attractive batch of Polygala Chamaebuxus purpurea. Primula altaica and the dwarf Rosa Roulettii in the exhibit of Mr. **F. G. Wood** attracted attention.

An admirable collection of alpines in pots and pans was again shown by **C. G. Kirch,** Esq. (gr. Mr. J. Wall), Edenhall, Beckenham. On the present occasion he had a splendid pan of Primula Mrs. J. H. Wilson, and also showed a good pot of P. Arkwrightii, bearing very large flowers. Other plants well worthy of special mention were Epigaea repens, Saxifraga Grisebachii, S. Arco Valley, S. Bridget, Armeria caespitosa, Arabis bellidifolia, Dodecatheon Hendersonii and Primula rosea splendens. Messrs. **Bakers, Ltd.,** showed Brooms, Deutzias, Japanese Cherries and various alpines. Messrs. **Reamsbottom and Co.** had a good exhibit of St. Brigid Anemones. Violets were shown by Mr. **J. J. Kettle** and Mr. **B. Pinney.**

Messrs. **Sutton and Sons** had an attractive exhibit of Cineraria Feltham Beauty strain in rich pink, blue, salmon and rose shades of colour. Carnations of good quality were shown by Messrs. **C. Engelmann, Ltd.,** Messrs. **Allwood Bros.** and Messrs. **Stuart Low and Co.**

A large collection of splendidly grown Schizanthus was staged by Messrs. **Blackmore and Langdon.** These were S. Wisetonensis hybrids, and illustrated a first-class strain which produced a wide range of beautiful colours. Mr. **James Douglas** had a good exhibit of Auriculas of both the Show and the Alpine varieties. Seedling Freesias in various colours, and a number of named varieties, were shown by Mr. **G. H. Dalrymple.**

Pot Roses were staged by Messrs. **Chaplin Bros.,** whose chief varieties were Royal Scarlet, Mrs. Dunlop Best, Sovereign, Chatillon Rambler and American Pillar. They also had vases of Mrs. Herbert Nash, Richmond and Ophelia. By the Tea Annexe, Mr. **J. H. Pemberton** had an attractive group of Polyantha Roses. The principal varieties were Ella Poulsen, Gruss an Aache, White Ella Poulsen, Edith Cavell, Topsie and Ebloussiant.

Good vases of cut Roses were staged by Mr. **George Prince,** who had fine blooms of Richmond, Lord Lambourne, I. Zingari, Mrs. H. Stevens, Victoria and Paul's Scarlet Climber. The principal Roses shown by Mr. **Elisha J. Hicks** were climbing Lady Hillingdon, Mrs. Elisha J. Hicks, Mrs. H. Stevens and Madame Edouard Herriot.

Polyanthuses of exceptional quality were staged by Messrs. **Dobbie and Co.,** Mr. **H. J. Jones** and Mr. **G. W. Miller,** and the last-named also showed Darwin Tulips.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the chair), Mr. G. W. Leak, Mr. William Poupart, Mr. C. W. Needham, Sir Daniel Hall, Mr. J. Jones, Miss E. Willmott, Mr. F. Secrett, Mr. F. Herbert Chapman, Mr. W. B. Cranfield, Mr. J. Duncan Pearson, Mr. P. R. Barr, Mr. Charles H. Curtis, Mr. W. F. Copeland, Mr. Alfred W. White and Mr. A. Simmonds (Secretary).

AWARDS OF MERIT.

Narcissus Suda (4a).—A beautiful giant Leedsii variety, the flowers being bold and of fine substance. Perianth white, trumpet soft sulphur-yellow, fairly wide at the mouth. Shown by Messrs. **Herbert Chapman, Ltd.**

Narcissus Eskimo (*I.b.*).—A shapely flower of fair size; perianth soft white; trumpet cream-coloured, with slightly deeper tint on the frill. This variety was registered as I.b. (white trumpet), but several members of the Committee considered it to be a 4a. (giant Leedsii); anyhow, it is an elegant Daffodil, and on the border line between the Trumpet and Leedsii sections. Shown by the **Donard Nursery Co.,** Newcastle, Co. Down.

GROUPS.

A large collection arranged by Messrs. **Barr and Sons** included many exceptionally good seedlings, principally of the Incomparabilis type, with vividly coloured coronas, though there were seedlings of other types of considerable merit. Their named varieties included Mustapha, King Alfred, MacMahon, Ben Hur, and Alasman, richly coloured Trumpet varieties; Lavender, a small Leedsii, with a fascinating orange-coloured rim to the corona; Surprise, Bernardino and Gallipoli, large Incomparabilis varieties, with vivid, orange coronas; Ibis, a shapely Poeticus, and Mountain Pride, a Barrii bloom of yellow colour, with a narrow orange rim to the corona.

Seedlings of merit were also included in their large collection by the **Donard Nursery Co.,** who also had excellent vases of Gog, Magog, Comely, White Nile, Moira O'Neill and Clare de Lune, of the large Trumpet section; Fortune's Giant, an Incomparabilis with an orange cup, and Dragoon, a large Barrii variety. Lady Bird, a small, star-like Incomparabilis with a vivid corona, was particularly attractive in the collection of Mr. **J. W. Barr.** He also staged especially good blooms of Sunrise, a lovely Barrii variety; Flame, an Incomparabilis with an attractive orange-coloured Picotee edge to the corona; and W. J. Grant, a large bicolor Trumpet.

The Incomparabilis varieties, both as new seedlings of merit and named varieties, were prominent in a good exhibit arranged by Messrs. **J. R. Pearson and Sons.** They had fine vases of Tosca, Isabel, Red Eye and John Evelyn. The last-named has a broad, frilled corona of great charm. In the centre of this well-arranged group there was a good vase of Mrs. R. D. Backhouse, a Trumpet variety with a beautiful Peach-shaded tube. Mrs. Barclay, a Barrii variety with a flattish corona, was also very attractive.

Seedlings of several types were shown by Messrs. **R. H. Bath, Ltd.,** who also had excellent vases of Fiery Knight, a large double with a definite yellow perianth and a cluster of vivid orange and yellow segments; Gaiety, an Incomparabilis with a pretty, frilled corona, and Orange Glow, of similar type, were also of great merit. Mr. **W. F. M. Copeland** had a small but choice collection of double Daffodils.

Some very good seedlings were staged by Messrs. **H. Chapman, Ltd.,** who also showed in White Nile and Holmdale two very good white Trumpets. Imperial, a large Trumpet with pale yellow perianth and a richer-coloured, widely expanded tube, and Fortunatus, which has a bright orange corona, were exceptionally good varieties. In the Annexe, Messrs. **Stewart and Son, Ltd.,** showed a collection of Narcissi, which included Horace, Coeur de Lion, King Alfred, Soleil d'Or, Argent and Van Waveren's Giant.

Pot plants, set in fresh moss, shown by Messrs. **Sutton and Sons,** included attractive groups of such good Incomparabilis as Red Eye, Gallipoli, Salembo, Robin Adair and Milford Haven. They also included Life Guard, a bicolor Trumpet, and Lovenest, a Trumpet with a paper-white perianth and Peach-stained tube.

A large group of Darwin Tulips was arranged with considerable skill by Messrs. **J. Carter and Co.** Along the centre they placed well-flowered specimens of Prunus triloba fl. pl. The principal Tulips were Professor Rawenhoff, rich rose; Mauve Claire, Frans Hals, and Afterglow, of salmon-pink shades; William Pitt, rich cardinal; Princess Elizabeth, medium pink; and La Tulipe Noir.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (Chairman), Mr. J. Cheal, Mr. A. Bullock, Mr. G. F. Tinley, Mr. H. Markham, Mr. W. F. Giles, Mr. F. Jordan, Mr. Edward Beckett, Mr. A. Poupart, Mr. A. C. Smith, Mr. H. Prince, Mr. W. H. Divers, Mr. E. A. Bunyard, Mr. A. Metcalfe and Mr. A. N. Rawes (Secretary).

The only exhibit before this Committee comprised two dishes of Pears from Mr. G. L. Langridge, Nina Park Orchards, Athi River, Kenya Colony. They were labelled Williams's Bon Chretien and Kieffer respectively, but neither of the fruits were like those grown in this country, and although the "Williams" was doubtless true, doubts were expressed as to the correct name of the other. The flavour of both was very good.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the Meeting held on March 3, 1927, the members of Committee present were Mr. J. B. Adamson (in the chair), Mr. R. Ashworth, Mr. A. Burns, Mr. A. Coningsby, Mr. J. Cypher, Mr. J. Evans, Mr. A. Keeling, Mr. J. Lupton, Mr. D. McLeod and H. Arthur (Secretary).

First Class Certificates.

Cattleya Prince Shimadzu var. Springtide (*Tityus* × *Hardyana*).—A large, shapely flower, white with slight pinkish tinge; lip with crimson lines and yellow throat. A Silver-Gilt Medal was awarded.

Odontoglossum St. George var. Albion (*eximium* × *Alexandria*). Both from the late H. T. Pitt, Esq.

Odontioda Olympia var. nigrum (*Oda. Charlesworthii* × *Odm. Olympia*).—A large flower of good shape; sepals and petals deep maroon, lip flat, deep brick red. From J. B. Adamson, Esq.

Awards of Merit.

Odontioda Colinge var. Arminii; Oda. Colinge var. Adrien; Oda. Bonar Law (*Oda. Coronation* × *Odm. ardentissimum*); *Cypripedium Scipio* (*Bassano* × *Euryades*); *C. Minotaur var. Radiance; C. Perseus, Townely Grove var.; C. Thebian* (*niveum* × *aureum virginale*); *Cattleya Clotho var. Ursus; Lycaste Skinneri var. Hannibal.* All from J. B. Adamson, Esq.

Cypripedium Memoria F. M. Ogilvie, Chardwar var.; C. Rob Roy (*Idina langleyense* × *Christopher*); *C. Rowland* (*Vandyke* × *Peter*); *Dendrobium Mora* (*nobile Sir F. W. Moore* × *Rubens grandiflorum*); *Miltonia Wm. Pitt var. Purple Monarch; Laelio-Cattleya Hassallii alba, Rosslyn var.; Cattleya White Empress* (*Trianae, Brownhill var.* × *Susanne Hye de Crom*). All from the late H. T. Pitt. Esq.

Laelio-Cattleya Zeno (*C. Luegeae* × *L.-C. St. Gothard*), *Brasso-Cattleya Ajax, Llewelyn's var.; Cypripedium Eurybiades, Llewelyn's var.; Odontoglossum Albion* (*Lambeauianum* × *Rossii*); *Dendrobium Merlin var. Mrs. G. V. Llewelyn; D. Merlin var. Rex.* All from G. V. Llewelyn, Esq.

Cymbidium Pauwelsii var. Norah; C. Alexanderi var. Alice; and *Odontoglossum Carola var. Mary.* From the Hon. G. E. Vestey.

Brasso-Laelio-Cattleya Lyra (*L.-C. callistoglossa* × *B.-C. Apollo*); *Brasso-Cattleya frigida* (*C. Blackii alba* × *B. glauca*). From Mrs. Bruce and Miss Wrigley.

Odontoglossum Clydoma, Beardwood var. From Col. Sir J. Rutherford, Bart.

Award of Appreciation.

Cypripedium Mrs. Francis Horner (*Beeckmanii* × *nitens Leeanum*). From J. B. Adamson, Esq.

Botanical Certificate (First Class).

Coelogyne sparsa and *Epidendrum pumilum.* From the late H. T. Pitt, Esq.

Cultural Certificate.

To Mr. A. Burns, for Lycaste Tunstillii; to Mr. B. Collins, for Cymbidiums in variety; to Mr. J. Howes, for Lycaste Skinneri and Odontioda Olympia var. nigrum; and to Mr. G. V. Llewelyn, for Cypripedium Euryades New Hall Hey var.

Groups.

J. B. Adamson, Esq., Blackpool (gr. Mr. J. Howes), staged a group to which a Gold Medal was awarded; Odontoglossums in variety, Odontioda Olympia var. nigrum, O. Colinge var. Adrien and O. Arminii; Cypripedium Perseus var. Townley Grove, C. Beta, C. Minotaur var. Radiance, C. Thebian, C. Mrs. Francis Horner, C. Princess Patricia, Cattleya Clotho var. Ursus; L.-C. Luminosa aurea; Masdevallia Schröderiana, with Lycastes and Cymbidiums were included.

The late H. T. Pitt, Esq., London (gr. Mr. F. W. Thurgood), was also awarded a Gold Medal for a most interesting group that included Cypripedium F. M. Ogilvie, Chardwar var., C. Rob Roy and C. Robert Paterson; Cattleya Prince Shimadzu var. Springtide and C. White Empress; Odontoglossum St. George var. Albion; Miltonia Wm. Pitt var. Purple Monarch, and Dendrobium Norah.

The Hon. G. E. Vestey, Southport (gr. Mr. B. Collins), was awarded a Silver-Gilt Medal for a group of Cymbidiums in variety, including C. Alexanderi vars. Alice, roseum and Margarita; C. Auriga Vesteyanum, C. Miranda, C. President Wilson, C. Martin and C. Petrel.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), were awarded a Large Silver Medal for a group containing Cypripedium Archie Nield, C. Halo, C. nitens-Leeanum Sunrise, C. Actaeus var. Lady Greensleeves, Odontoglossum crispum in variety; Lycaste Tunstillii, L. Imschootiana and forms of L. Skinneri, with Cymbidiums and Brasso-Cattleyas.

G. V. Llewelyn, Esq., Southport, staged a group to which a Silver Medal was awarded. This included Cypripedium Eurybiades, Llewelyn's var., C. Mrs. Francis Horner and C. Euryades, New Hall Hey var., Odontoglossum Albion and O. Woodroffeae, Brasso-Cattleya Ajax, Llewelyn's var., Cirrhopetalum picturatum and Dendrobiums.

Col. Sir J. Rutherford, Bart., Blackburn (gr. Mr. J. Lupton), staged Odontoglossum Clifdoniae, Beardwood var.

Messrs. J. Cypher and Sons were awarded a Silver Medal for a group of Cypripediums and Dendrobiums in variety, with Odontoglossum Rossii, Cymbidium Alexanderi, Cattleya Maggie Raphael, Ada aurantiaca, Oncidium cheirophorum, etc. Messrs. Keeling and Sons, Bradford, exhibited Cypripediums, Odontoglossum Wiganianum, Odontioda Dacia, Dendrobium Brymerianum and Cymbidium Felicity. Mr. J. Evans, Colwyn Bay, sent Dendrobiums and Cypripediums in variety.

Obituary.

E. White.—On the morning of March 31, Mr. E. White passed away peacefully, after an illness of only two days' duration. Mr. White was for nearly forty years gardener at Cranford Hall, Kettering, Northamptonshire. He was seventy-five years of age and had lived in semi-retirement at Barnwell for some years. He is survived by a daughter and two sons.

Joseph Saunderson.—We regret to learn of the death of Mr. Joseph Saunderson, at The Rosary, Glen Conway, who was for a long period associated with the famous gardens at Bodnant. Previous to taking charge at Bodnant, Mr. Saunderson spent seven years at Chatsworth, where he obtained a wide experience of many phases of horticultural activities. In 1881, the late Mr. H. D. Pochin—father of Lady Aberconway—was developing the Bodnant estate, and Mr. Saunderson was invited to take charge of the gardens and carry out many improvements and extensions. After the death of Mr. Pochin, Mr. Saunderson served under Mrs. Pochin, and, later, again under the present Lord and Lady Aberconway, and throughout the long period of thirty years during which he was associated with the fortunes of Bodnant, he saw this fine establishment develop wonderfully. Over a considerable period he was famous as a fruit grower and took numerous prizes in the Chester district for Grapes and other produce. The rock garden at Bodnant owes a great deal to his skill and intelligence. He was at all times ready to impart his knowledge to interested people, thousands of whom visited Bodnant during his tenure of office. He retired about fifteen years ago (see *Gard. Chron.*, April 29, 1911), and during his retirement took a very keen interest in the affairs of the Parish of Glan Conway, also acting as Churchwarden, and supporting the schools and other institutions of the neighbourhood.

Madame Louise Guillion.—The death is announced in the French horticultural press of Madame Vve. Guillion, née Louise Arluison, sister of M. Gaston Arluison, the well-known Paris representative of the firm of Geo. Monro, Ltd., of Covent Garden, and International Secretary for England of the Fédération Horticole Professionelle Internationale.

Karl Schone.—We are sorry to learn of the death, on March 5, of Herr Karl Schöne, who was possibly the best-known and most successful Dahlia raiser in Germany. Over eighty excellent modern varieties were raised by him, including Goldene Sonne, Meisterstück, and the latest of all, Andreas Hofer. Herr Schöne was a man of attractive character, a hard worker, a true and constant friend, and affable and kindly to all with whom he came in contact. German horticulture has sustained a real loss in his death.

Charles Sprague Sargent.—As these pages were being passed for press the news reached us of the death of this distinguished horticulturist, whose name is inseparably associated with the famous Arnold Arboretum at Jamaica Plain, Massachusetts. He died at his home at Brookline, on the 22nd ult., aged eighty-five years.

ANSWERS TO CORRESPONDENTS.

Pruning an Escallonia macrantha Hedge.—*D. G.* About mid-April would be the best time to prune this species and other Escallonias when fairly hard cutting is contemplated. A foot of growth at the top and nine inches to one foot at the side of the hedge may be pruned back the same season, or even more if you consider it desirable. In pruning, cut the long branches back to points where there are side branches, so that no ugly, leafless spurs are apparent. Cover the surfaces of large cuts with Stockholm tar or coal tar.

Short-stemmed Tulips.—*O. C.* When the bulk of the blooms in a batch of forced Tulips have short stems, this is probably due to incorrect treatment, or because the variety is not suitable for early forcing. The trouble is more likely to occur among single varieties than among double ones. Certain double varieties do give a percentage of short-stemmed flowers, and while this may be sometimes due to disease, in others it may be because the bulbs were unduly exposed to the sun and became more or less scorched immediately after lifting. It is very often found under these circumstances that the inner skin of the bulb is brown on one side only, whereas it should be white. In the case of Couronne d'Or the base of the bulb is sometimes covered by a hard outer skin, so that the roots are not able to penetrate readily into the soil. In certain instances the outer covering is so hard that the roots endeavour to push up between the first and second scales of the bulbs, and, in consequence, fail to reach the soil. In the first instance the trouble may be prevented by the removal—with the point of a knife—of the hard outer skin from the base of the bulb, and in the second instance by cutting through the skin of the first scale just above the rooting base, before the bulbs are potted or boxed.

Communications Received.—K. M. H.—J. S. W.—A. B.—E. S. S.—A. G.—N. E. B.—E. B.—J. K.—J. R.—T. H.—J. B.—A. T.—F. J.—H. M.—W. G. B.—D. T., Dunedin.—G. J.—C. R.—P. T.—Woodcote.—A. E. F.

MARKETS.

COVENT GARDEN, Tuesday, April 5th, 1927.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d.	s. d.
Adiantum cuneatum per doz. ...	10 0	12 0
—elegans ...	10 0	15 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus ...	12 0	18 0
—Sprengeri ...	12 0	18 0
Aspidistra, green	36 0	60 0
Asplenium, doz.	12 0	18 0
—32's	24 0	30 0
—nidus ...	12 0	15 0
Azaleas, various, 48's, each ...	4 6	7 6
— — 60's, per doz.	21 0	24 0
Boronia megastigma, 48's, per doz.	36 0	48 0
Cacti, per tray —12's, 15's ...	5 0	7 0
Cinerarias, 48's, per doz. ...	12 0	15 0
Cyclamens, 48's, per doz. ...	18 0	21 0
Crotons, doz. ...	30 0	45 0
Cyrtomium ...	10 0	25 0
Daffodils, 48's, per doz. ...	9 0	12 0
Erica melanthera, 48's, per doz.	24 0	30 0
—60's ,,	12 0	15 0
—72's ,,	8 0	9 0
Genistas, 48's, per doz. ...	21 0	24 0
Heliotropes, 48's, per doz. ...	15 0	18 0
Hyacinths, 48's, 3's, per doz.	15 0	18 0
—60's, per doz.	10 0	15 0
Hydrangeas, pink, 48's, per doz.	24 0	36 0
—blue, 48's, per doz.	30 0	36 0
—white, 48's, per doz.	24 0	30 0
—larger sizes, each	4 0	5 0
Marguerites, 48's, per doz. ...	21 0	24 0
Mignonette, 48's, per doz. ...	18 0	21 0
Nephrolepis in variety ...	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	30 0	48 0
—60's	15 0	18 0
Pteris, in variety	10 0	15 0
—large, 60's	5 0	6 0
—small ...	4 0	5 0
—72's, per tray of 15's ...	2 6	3 0
Roses, Polyanthas, 48's, per doz.	18 0	24 0
Spiraea, white, 48's, per doz.	21 0	24 0
—pink, 48's, per doz.	27 0	30 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun	10 0	12 0
cuneatum, per doz. bun. ...	8 0	10 0
Anemone fulgens, per doz. ...	3 0	4 0
Asparagus plumosus, per bun., long trails, 6's ...	2 0	2 6
med. sprays...	2 0	3 0
short ,, ...	0 9	1 3
—Sprengeri, bun. long sprays	2 0	2 6
med. ,, ...	1 6	2 0
short ,, ...	0 6	0 9
Azalea, white, per doz. bun.	5 0	6 0
Camellias, 12's, 18's, per box	1 6	2 6
Carnations per doz. blooms	2 0	3 6
Croton leaves, per doz. ...	1 9	2 6
Daffodils, per doz. bunch—		
—King Alfred	5 0	6 0
—Sir Watkin...	2 0	2 6
—Victoria ...	2 6	3 0
—princeps ...	1 6	2 0
—Emperor ...	2 6	3 0
—Double Van Sion... ...	2 6	3 0
Fern, French, per doz. bun.	10 0	12 0
Forget-me-not, per doz. bun.	6 0	9 0
Freesia, white, per doz. bun.	2 0	2 6
French Flowers—		
—Anemones, mixed, doz. bun. ...	5 0	6 0
— — double pink doz. bun. ...	2 0	3 0
—Myrtle, green, per doz. bun.	1 6	2 0
—Ranunculus—		
—double scarlet	5 0	6 0
—Violets, Parma, per bun. ...	2 0	2 6
—Stock, double white, per doz. bun.... ...	3 0	3 6
Heather, white, per doz. bun.	6 0	9 0
Hyacinths, white, large, doz. bun., 6's	6 0	9 0
Iris, Spanish, per doz. bloom—		
— blue... ...	2 6	3 0
— yellow ...	2 6	3 0
— mauve ...	2 0	2 6
—white ...	2 6	3 0
Lilac, white, per doz. stems ...	4 0	8 0
—mauve, per doz. sprays...	5 0	6 0
Lilium longiflorum, long, per doz. ...	3 6	4 0
—speciosum rubrum, long, per doz. blooms ...	4 0	4 6
—short, doz. blooms ...	3 0	3 6
Lily-of-the-Valley, per doz. bun.	24 0	30 0
Narcissus, per doz. bunch—		
—Grand Primo	2 0	2 6
—ornatus ...	2 6	5 0
—Elvira ...	5 0	6 0
—Grand Monarque,	3 0	3 6
—Cornish White	2 0	2 6
—Horace ...	4 0	5 0
—Barrii ...	3 0	3 6
—Lucifer ...	3 6	4 0
—White Lady...	2 6	3 0
Orchids, per doz.		
—Cattleyas ...	24 0	36 0
—Cypripediums	6 0	8 0
Primroses, per doz. bun. ...	1 6	2 6
Richardias (Arums), per doz. blooms .	5 0	6 0
Roses, per doz. blooms—		
—Columbia ...	5 0	6 0
—Richmond ...	4 0	6 0
—Madame Butterfly ...	4 0	6 0
—Golden Ophelia	5 0	6 0
—Mrs. Aaron Ward ...	3 0	3 6
Smilax, per doz. trails ...	6 0	7 0
Star of Bethlehem (Allium), per doz. bun.	2 6	3 0
Sweet Peas, in variety ...	9 0	18 0
Tulips, per doz.		
—single white	24 0	30 0
— — yellow ...	24 0	30 0
— — scarlet ...	18 0	24 0
— — pink ...	21 0	24 0
—Murillo ...	15 0	18 0
—Couronne d'Or	24 0	30 0
—Prince of Austria ...	21 0	24 0
—Darwin, red,	21 0	24 0
— — pink ...	24 0	27 0
— — mauve ...	21 0	24 0
— double—		
—Lucretia ...	24 0	27 0
—Tea Rose ...	18 0	24 0
Violets, per doz. bun.... ...	3 0	4 0

Remarks.—Daffodils and Narcissi have been in excessive supply for some days past. Those arriving from the Channel Islands have been in a very soft condition and salesmen were pleased to accept any reasonable offer for them; the supplies from Guernsey and Cornwall have been the heaviest so far received this season. There is also a considerable increase in the numbers of Roses, and more sorts are now on sale, including Madame Abel Chatenay and Molly Sharman Crawford. The prices of Carnations are similar to last week; second grade blooms are difficult to clear. The best sorts marketed are Aviator, Faith Dutton and Spectrum (Scarlet), Cupid, Laddie, Enchantress Supreme, Lady Northcliffe, Mayday, Mrs. Hemus, Eileen Lowe, Lady Boscawen, Winsor, Cerise Peerless, Mrs. Ward, Favourite, Una Wallace and Burnett, (pink); Topsy (crimson), Enchantress and White Wonder (white). Richardias (Arums) may meet with a better demand during the next few days; there should be more demand for them for Palm Sunday and the Easter festivities. Lilium longiflorum is arriving in good condition and the prices remain normal. Sweet Peas show a little improvement in quality, but there is not much demand for these flowers at present. Irises are receiving more attention from buyers, with a gradual improvement in quality; blue white and yellow sorts are being sent by growers in very fine condition. Single Violets are decreasing in quantity, and their prices are firmer. Darwin Tulips are still the most attractive of these flowers, and their prices are similar to those of last week. A few blossoms of Gardenias comprise the newest subject in this department; there are also some very fine blooms of white and pink Ranunculus, also St. Brigid Anemones from Cornwall.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, English—		
—Lane's Prince Albert ...	8 0	16 0
—Newton Wonder	8 0	16 0
Apples, Virginian Albemarle ...	—	35 0
—Greening ...	26 0	28 0
—Oregon Newtown... ...	—	15 0
—Washington Winesap	12 0	14
—Nova Scotian—		
—Spy	16 0	22 0
—Baldwin ...	16 0	22 0
—Nonpareil ...	18 0	22 0
—Ben Davis ...	16 0	20 0
British Columbian—		
—Delicious ...	—	15 0
—Newtown ...	14 0	16 0
—English Bramley's Seedling	18 0	24 0
Bananas ...	17 0	24 0
Brazils, per cwt.	—	72 0
Grape fruit— per case		
—Blue Goose...	25 0	40 0
—Jamaica ...	20 0	25 0
—Honduras ...	20 6	25 0
Grapes, South African, per case		
—Gros Colmar	12 0	14 0
—Hannepoot, red and white	8 0	15 0
—Waltham Cross	8 0	15 0
—Molinera ...	10 0	12 0
—Rosaki ...	8 0	14 0
—Barbarossa ...	10 0	12 0
—Raison Blanc	8 0	10 0
—Lady Downes	10 0	14 0
Grapes, Australian, ½-bushel cases—		
—Red Prince ...	—	20 0
—Wortley Hall...	—	22 0
—Waltham Cross	—	20 0
Lemons, Messina Boxes .	10 0	18 0
—Naples, per case	20 0	26 0
Oranges, per case—		
—Jaffa, per case	21 0	22 0
—Californian Navel ...	30 0	32 6
—Denia ...	18 0	30 0
—Murcia ...	16 0	26 0
Pears, South African, per box—		
—Louise Bonne of Jersey ...	6 0	10 0
—Beurré Diel	5 0	6 0
—Beurré Hardy	8 0	10 0
Pines, case ...	21 0	36 0
Plums, per box—		
—Kelsey ...	5 0	9 0
South African Peaches, per box—		
—Yellow Flesh	3 6	4 0
Strawberries (forced)—		
—special, per lb.	15 0	20 0
—best, per lb. ...	7 0	12 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus—		
—Cavaillon ...	2 6	2 9
—Special Lauris	4 0	6 0
—Best ,,	3 0	3 6
Beans, Forced—		
—Special ...	1 6	2 6
Beans, Madeira—		
—Finest ...	4 0	8 0
Beets, per cwt.	5 0	6 0
Belgian Chicory, per lb ...	0 3	0 3½
Cabbage, per doz.... ...	2 0	2 6
Carrots, per ½-bag ...	4 0	6 0
Cauliflowers—		
—English, per crate... ...	6 0	6 6
—St. Malo, crate	3 0	5 0
Celery, fan ...	2 0	2 6
Cucumbers, doz.	6 0	8 0
—Flats, 3, 3½, 4 doz.	16 0	20 0
French Endive, per doz. ...	2 6	3 0
Leeks, per doz.	2 0	2 6
Lettuce, round, per doz. ...	1 6	2 6
Mint, forced, per doz. ...	4 0	6 0
Mushrooms		
—cups... ...	1 9	2 6
—Broilers ...	1 3	1 6
Onions—		
Valencia ...	11 0	12 6
Parsnips, per cwt. ...	4 6	5 6
Potatos—		
King Edward— ton	£9/10	£10
—others, ton ...	£6	£7 10
Potatos, New—		
—Guernsey ...	0 8	0 10
—Canaries, case	8 0	21 0
Radishes, per doz.	1 0	1 6
Rhubarb, forced, per doz. ...	1 0	1 6
—Natural ...	4 0	5 0
Savoys, per tally	8 0	12 0
Seakale, per punnet ...	1 0	1 3
Tomatos—		
—English, per lb	3 6	4 0
—Canary Island	16 0	18 0
Turnips, per cwt.	4 0	5 0

Remarks.—There has been a better tone throughout the market during the past week. Shipments of fruits from the Cape are moderately heavy and consist of Grapes, Peaches, Pears and Plums. The Grapes were in variable condition, and some holders have been unable to clear them, but on the whole, the South African fruit trade has been good. Apples from the United States and Canada are still available. New Zealand Apples have sold well and the first Australian Apples of the season are due. Some good home-grown fruits of Lane's Prince Albert and Newton Wonder are still being marketed and are meeting a fair demand. Grapes from Belgium are good and selling well, in spite of competition with Grapes from South Africa and Australia. Forced Strawberries are very dear but they are selling well. Prices for Oranges from Spain, California and Jaffa are inclined to be easier. Larger quantities of Tomatos are arriving from the Lea Valley and Worthing districts, and prices for Tomatos are much lower than those that were ruling a week ago. The Cucumber trade is good, and the fairly heavy supplies that are available are selling comparatively well. French Beans are more plentiful and slightly lower in price. Asparagus from France is more abundant every day and is selling at more favourable prices. New Potatos from Guernsey have sold quite well, but the first consignment of Spanish new Potatos is a bad omen for the Guernsey produce. Hothouse Peas are a quieter business. Mushrooms are selling well notwithstanding supplies are fairly heavy. Salads from France are not quite so abundant; some good English Lettuces are now available. Green vegetables are a slightly better trade. The conditions of trade in old Potatos remain about the same as last week.

GLASGOW.

Following on the spell of mild weather, the daily supplies of Daffodils in the cut flower market were in excess of the demand, and prices dropped to the lowest levels of the season. Golden Spur, princeps and Sir Watkin were sold from 9d. to 1/3 per dozen bunches; Emperor and Victoria for 1/- to 1/6; King Alfred for 2/- to 4/-; ornatus for 1/6 to 2/6; and Primo for 9d. to 1/3. Tulips were also cheap, prices for Clara Butt varying from 4d. to 8d. per bunch; Murillo, 5d. to 8d.; Bartigon, 6d. to 8d.; La Reine and William Saunders, 6d. to 9d.; Prince of Austria, 8d. to 10d.; William Copland, 9d. to 1/-; Lucretia, Van der Neer and Luisant, 10d. to 1/-; Couronne d'Or, 8d. to 1/-; and White Hawk, 10d. to 1/2. Wedgwood Iris made 3/6 to 4/- per dozen; white Iris, 2/- to 2/3; yellow Iris, 2/-. Carnations, 3/- to 4/- per dozen; red Roses, 2/6 to 5/- per dozen; pink Roses, 6/- to 8/-; Wallflowers, 1/- to 1/6; Violets, 6d.; Anemones, 6d to 1/-; Lily-of-the-Valley, 2/6 to 3/- per bunch; Lilac, 1/- to 1/3; Richardia, 3/6 to 4/6; and Asparagus, 9d. to 1/6.

Business in the fruit market was very quiet, and prices generally moved in a downward direction. Jaffa Oranges were cheaper at the following values: 240's, one chalk, 21/-, two chalks, 20/-, three chalks, 16/-; 144's and 152's, one chalk, 19/-, two chalks, 17/6, three chalks, 13/-; 136's, one chalk, 18/-, two chalks, 16/-, three chalks, 13/-; 128's, one chalk 17/-, two chalks, 15/6, and three chalks, 14/6. The price of Sunkist Oranges averaged 27/-. Apples were slow to move. Winesap, ex fancy, were worth 11/- to 13/6 per case; fancy, 9/6 to 12/6; Newtown Pippin, 10/- to 15/-; Baldwin, 16/- to 19/- per barrel; Ben Davis, 19/- to 22/-. Prices for Porto Rico Grape Fruit were steady at 20/- to 22/-. Melons realised 2/- to 2/6 each, and Pine Apples, 7/-. There were large deliveries of fruits from Cape Colony, especially Grapes, which were quoted as follows: Waltham Cross, 8/- to 10/- per tray; Gros Colmar, 10/- to 12/6; red Hannepoot, 7/- to 10/-; and Barbarossa, 10/-. The value of Pears ranged from 5/- to 7/-, and Kelsey Plums, 4/- to 6/-.

New vegetables were plentiful and cheap; Cucumbers sold at 5d. to 8d. each; Lettuces at 1/6 to 3/- per crate; Turnips and Carrots at 6d. to 8d. per bunch; Endive at 3d. and Radishes at 2d. to 3d. Rhubarb realised 30/- to 32/- per cwt. Teneriffe Potatos were worth 16/- per box; Tomatos, 12/- to 24/- per bundle; and Levant Onions, 9/- to 11/- per bag.

LAW NOTE.

MIXED POTATO SEED.

Sheriff Dudley Stuart, Cupar, has given judgment for the pursuer in an action raised by James Douglas, Potato Merchant, Falkland, against Colonel Oliver Haig, Ramorine, Falkland, for £30 damages for breach of contract. Pursuer averred that defender's farm manager sold him two tons of Arran Chief seed Potatos which were guaranteed pure. Defender asserted that he gave no guarantee and that he told pursuer the Potatos were mixed. A Board of Agriculture inspector said the Potatos which were planted at Auchterarder were mixed to the extent of fifty per cent.

GARDENING APPOINTMENT.

Mr. F. S. Hart, previously foreman at The Dell Park, Englefield Green, Surrey, and at Tilstone Lodge, Tarporley, Cheshire, as gardener to Alick S. Agnew, Esq., Woodlands, Wilmslow, Cheshire. (Thanks for 2/6 for R.G.O.F. Box.—Eds.)

SCHEDULES RECEIVED.

National Dahlia Society.—Exhibition to be held on Wednesday, September 14, at the Royal Horticultural Hall, Westminster.—Secretary, Mr. W. J. Chittenden, 2, Dents Road, Wandsworth Common, S.W.11.

Blackpool Flower Show.—First annual exhibition, to be held in Stanley Park, on July 20, 21 and 22.—Secretary, Mr. W. Foster, Town Hall, Blackpool.

Tewkesbury and District Daffodil and Spring Flower Society.—Exhibition to be held in the Town Hall, on Thursday, April 14.—Secretary, Mr. J. S. Gannaway, Eastville, Ashchurch Road, Tewkesbury.

Whitley and Monkseaton Chrysanthemum Society.—Eighth Chrysanthemum Show, to be held on Friday, and Saturday, November 11 and 12, in the Y.M.C.A. Hall, Whitley Bay.—Secretary, Mr. J. Haley, 22, Countess Avenue, Whitley Bay.

THE
Gardeners' Chronicle
No. 2103.—SATURDAY, APRIL 16, 1927.

CONTENTS.

Acidity and lawns ... 271
Alpine garden—
  Erythronium revolutum Pink Beauty 265
  Haberlea rhodopensis 265
  Stachys corsica ... 265
  Two rockery Cranesbills 265
Bamboos, the growth of 266
Bog garden—
  Primula rosea ... 265
Books, notices of—
  Carnations for Amateurs 270
Botanic Gardens Georgetown ... 269
Capsid bug in the Wisbech district ... 260
Cultural memoranda—
  Propagating Antirrhinums and other flowers from cuttings 264
Dutton, Mr. A. F. ... 260
Economic botany at Kew... 259
Economic plants of the Bay Islands ... 270
Flower garden—
  Arctotis scapigera... 264
Fruit garden—
  Fruit prospects ... 270
Fruit register—
  Apple Wealthy ... 271
"Gardeners' Chronicle" seventy - five years ago 261
Garden notes from south-west Scotland 267
Glasnevin, notes from 268
Hanbury, the late Sir Thomas, and La Mortola 267
Hardy flower border—
  Anchusa italica Dropmore variety 264
Ideal gardens and plant lore 266
Indoor plants—
  Begonia manicata... 264
  Strobilanthes Dyerianus 264
Kew, Lapponicum Rhododendrons flowering at 259
Land drainage, Royal Commission on ... 260
Manure, uses of artificial 269
Obituary—
  Black, W. S. ... 275
  Brotherston, Geo. ... 275
  Gentilhomme, Léon-Louis 275
  Kotte, Karl ... 275
  Neil, Samuel ... 275
  Sandu Aldea ... 275
Paris Spring Show ... 260
Parks and gardens, public 270
Pimpernels 261
Primrose, the blue ... 271
Ragionieri, Dr. A. ... 260
Sargent, Charles Sprague 259
Snowdrops, seedling... 272
Societies—
  British Mycological 272
  London Daffodil ... 273
  Manchester & North of England Orchid 272
Tithe Rent Charge in 1926, amount of ... 260
Trees and shrubs—
  Alnus oregona ... 264
  Cercidiphyllum japonicum 264
  Potentilla fruticosa 264
  Rhododendron argyrophyllum ... 264
Vegetable garden—
  Uncommon vegetables worth growing 271
Week's Work, the ... 262

ILLUSTRATIONS.

Auricula Duchess of York 261
Cymbidium Pauwelsii, Ankersmit's variety 263
Dendrocalamus giganteus 266
Dutton, Mr. A. F., portrait of 260
Rhododendron argyrophyllum 267
Sedum bellum in the Glasnevin Botanic Gardens ... 268
Stachys corsica 265

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 47·3°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Tuesday, April 12 10 a.m. Bar. 30·4. Temp. 50°. Weather, Fine.

Charles Sprague Sargent. By the death, on March 22, of Professor Charles S. Sargent, head of the Arnold Arboretum and Professor of the Arboricultural Department of Harvard University, Massachusetts lost one of her most distinguished citizens, America its leading dendrologist, and the world a great horticulturist. Professor Sargent was eighty-six years of age, and his fatal illness lasted but a fortnight; prior to that time he took an active part in the business of his beloved Arboretum. Born in Boston, graduated from Harvard College, and breveted major at the ending of the Civil War "for faithful and meritorious service," Prof. Sargent identified himself with Harvard College, where he was Professor of Horticulture in 1872 and 1873, and Director of the Botanical Gardens there from 1873 to 1879. On March 29, 1872, Professor Sargent's connection with the Arnold Arboretum began, when the indenture signed by the trustees of James Arnold, a New Bedford merchant, and the president and trustees of Harvard College, gave to the College for the Arboretum then proposed, an endowment of $104,000 with which to purchase 125 acres of farm and forest land in Jamaica Plain, the agreement providing that "the Arboretum shall contain as far as is practicable all the trees, shrubs and herbaceous plants, indigenous or exotic which can be raised in the open air" at the site of the institution. The city of Boston and Harvard College agreed to Professor Sargent's suggestion that the City take the Arboretum by right of eminent domain as part of its park system, and immediately the state legislature ratified a special Act turning the property back to Harvard on lease for 1,000 years at a yearly rental of $1.00, this being in 1882. The site selected for the Arboretum was rolling and romantic, with wonderful cliffs and a splendid remnant of a Coniferous forest. At first meeting with but scant support in the big work he visualised and had undertaken, Professor Sargent gradually enlisted active support for his project as people grew more interested in arboriculture and saw the wonderful developments made. Always deeply interested in forestry, Professor Sargent was selected by the American Association for the Advancement of Science to make a comprehensive study of the forest resources of the country, the first Federal action ever taken on this vital subject. He was chairman of the U.S.A. Commission on Forest Policy which saved great areas in the Catskills and Adirondacks for the state of New York—the real beginning of the National Forests now covering an area of over 150,000,000 acres. He encountered bitter opposition from interested parties in the course of his long and strenuous battles for Forest Conservations, but urged the President to stand firm, which he did. The formation of the great National Parks also was urged by Professor Sargent, and that excellent journal, *Garden and Forest*, which he issued for ten years, was a stalwart champion of forest conservation, and the passing of this magazine is still deplored in America. Professor Sargent had travelled extensively, and many new plants were collected by him personally in Japan, China and other lands; he also sent first-class collectors to divers countries in the search for new material, which greatly enriched American gardens. Always a staunch advocate of the increased planting of more of the beautiful, native American plants, he revolutionised plantings which up till that time had been too heavily of imported subjects, many of them utterly unsuitable and far less satisfactory than American material. It would need a whole catalogue to enumerate the many valuable trees and shrubs introduced to commerce by the instrumentality of Professor Sargent through the Arnold Arboretum. In 1923, he was awarded the Frank N. Meyer Medal for "distinguished services in the field of foreign plant introduction." He was the first recipient of the George R. White Medal of Honor, offered through the Massachusetts Horticultural Society for distinguished services to horticulture. He was also the recipient of the Loder Medal of the Royal Horticultural Society for his work with Rhododendrons, and had received many high awards for exhibits made at the exhibitions of the Massachusetts Horticultural Society. Horticulture has lost a staunch friend in Professor Sargent, who had for a long term of years been an indefatigable worker for the Massachusetts Horticultural Society, Azaleas, Rhododendrons, Wistarias, Clivias, Nerines and tree Paeonies being but a few of the plants he favoured, but everything hardy enough and of merit for the garden was planted and tried at his beautiful estate, Holm Lea, in Brookline; this estate was annually visited by thousands when the collections of Lilacs, Pyrus, Cornus, Kalmias, Rhododendrons, Azaleas and other hardy subjects were at their best. It is earnestly to be hoped that this lovely estate, so beautifully planted, may be retained, if not as an estate, as a part of Boston's great park system. As an author, Professor Sargent was well-known, and his many works include *A Catalogue of the Forest Trees of North America*, *The Woods of the United States*, *The Forest Flora of Japan*, *Report on the Forests of North America*, *Trees and Shrubs*, *Silva of North America*, and *A Manual of the Trees of North America*. The Arnold Arboretum will serve, if anything were needed, to perpetuate the memory of Professor Sargent, as its 275 acres of rolling land, beautifully planted with what is the greatest collection of trees and shrubs in the Western Hemisphere and, in addition, its matchless herbarium and great library, make it a place to which students in dendrology in the north temperate zone must resort if they desire to master the subject. Many distinguished horticulturists attended the funeral service at Boston on March 25, when his remains were laid to rest in Walnut Hills Cemetery, Brookline, a lovely, restful spot, not far from the scenes of his labours. One son and three daughters survive Professor Sargent; his distinguished son-in-law, Guy Lowell, a noted landscape architect, died so recently as February 4 last, at Madeira, while enjoying a holiday.

Economic Botany at Kew.—Mr. Hugh C. Sampson, formerly Director of Agriculture, Madras, has been appointed Economic Botanist at the Royal Botanic Gardens, Kew. The appointment follows the grant to Kew of £4,000 for five years from the Empire Marketing Board. Mr. Sampson will be available either to visit the Dominions and Colonies from time to time, or to set free a superior officer of the Kew staff to undertake overseas missions. Part of the grant will also be devoted to sending botanical collectors to various parts of the world to study and bring home plants of economic importance for cultivation at Kew and distribution to the Dominions and Colonies. Since Mr. Sampson retired from his post in India he has been engaged in carrying out researches in Cotton and other economic products in Nyasaland under the auspices of the Empire Cotton-growing Association.

Honour for Sir Frederick Keeble.—Under Rule 11, which empowers the annual election by the Committee of persons of distinguished eminence in science, literature, the arts, or for public service, our colleague, Sir Frederick William Keeble, formerly Sherardian Professor of Botany at Oxford University, and previously Director of Wisley Gardens, has been made a member of The Athenaeum.

Legacy to a Gardener.—The Rev. Algernon H. Cochran, of Merry Hall, Ashtead, Surrey, who died on February 15, left a legacy of £182 to his gardener, Mr. A. E. Newby.

Lapponicum Rhododendrons flowering at Kew.—Horticulturists proposing to visit Kew during Eastertide may be glad to know that many of the interesting 'Lapponicum' Rhododendrons are now in flower on the rock garden and by King William's Temple. Taking the 'Lapponicum' series generally there is probably no other group, with the exception of the 'Triflorums,' which gives such first-rate garden value. They are small, compact, and brightly floriferous. In mass, they are most effective, and their foliage, which is generally aromatic, is pleasant. They usually flower in their third year, and in five or six years form stout little bushlets or low, rounded cushions, smothered beneath a foam of charmingly-coloured blossom—lavender, violet, purple, rose-pink or yellow, in varying tints. The tussocky habit is one to encourage so far as possible. Species now in flower include the following :—R. flavidum, with lemon-yellow flowers on twiggy growths, two to three feet high; R. hippophaeoides, lavender flowers on bushlets, three to four feet high,—there is also a form from which the blue pigment is lacking, with rosy-pink flowers; R. scintillans (this is practically R. hippophaeoides); R. impeditum, a much dwarfer, hassock-forming species, also with lavender flowers,—the fallacy, however, of describing any of these as blue may be realised by comparing them with a really blue flower, such as a Gentian or Muscari; R. orthocladum, a beautiful, rounded undershrub, crammed with pale lavender flowers; R. cantabile, with almost violet flowers; R. osmerum, with dark-coloured flowers, which might be called lavender-purple; and R. lysolepis, one of the brightest of the purple-flowered species, abounding in blossom. The longest shoots of the last have been killed back, but far from spoiling the plants, this seems to have given them more substance and a sturdier bushiness. No doubt all the above-mentioned species are good on their day, but the pick just now are undoubtedly R. impeditum, R. orthocladum, R. cantabile and R. lysolepis.

Amount of Tithe Rentcharge in 1926.—The total amount of tithe rentcharge charged on lands in England and Wales by the Tithe Act, 1836, and the amending Acts, was, according to the *Journal* of the Ministry of Agriculture, £4,054,405. It is estimated that, by the end of the year 1926, this sum had been reduced by redemption, merger and other means to about £3,249,000. There are no available statistics showing exactly what portion of this estimated sum of £3,249,000 was payable to incumbents of benefices, but the amount was probably about £1,889,000. It may further be estimated that about £273,000 was owned by the Ecclesiastical Commissioners, £96,000 belonged to ecclesiastical corporations, and £209,000 was owned by the Welsh Church Commissioners, the balance of £782,000 being held by various schools, colleges, charities and individual lay owners.

Paris Spring Show.—The programme of the International Horticultural Exhibition, to be held in Paris from May 25 to June 3, is now to hand, and it would appear that it is likely to be well supplied with important exhibits and to attract large numbers of interested visitors. The exhibition will be formally opened at 11 a.m. on the 25th, after which, at 12.30, the judges will lunch at the headquarters of the Society in the Rue de Grenelle. At 4 p.m., the Horticultural Congress will open at the same place. On Thursday, May 26, there will be an excursion to Versailles, comprising visits to nurseries and to the Versailles Horticultural College, as well as to the park, etc. On Friday, the 27th, the second session of the Congress will begin at the early hour of 8.30 a.m. At 2 p.m., a visit will be made to the National Natural History Museum, and at 5 p.m. a reception at the Hôtel de Ville will take place. On Saturday, there will be an excursion to Bourg-la-Reine, Châtenay, and Verrières-le-Buisson with déjeuner at Sceaux-Robinson; at 9 p.m., a reception will take place at the Society's headquarters, Rue de Grenelle.

Barr Memorial Daffodil Cup.—On the occasion of the London Daffodil show, the members of the Royal Horticultural Society's Daffodil and Tulip Committee award the Barr Memorial Daffodil Cup—which commemorates the late Mr. Peter Barr—to someone who has done good work on behalf of Daffodils. The cup is held for one year only, and was awarded on April 12 to Mr. J. T. White, of Spalding, a pioneer of the cultivation of Daffodils for market, and now eighty years of age. A portrait and appreciation of Mr. J. T. White were given in our issue of April 4, 1925. The Barr Memorial Cup has been held previously by the Rev. G. H. Engleheart, 1912; Mr. Peter R. Barr, 1913; Mr. E. M. Crosfield, 1914; Mr. P. D. Williams, 1915; Mrs. R. O. Backhouse, 1916; Mr. Walter T. Ware, 1917; Miss Ellen Willmott, 1918; Rev. J. Jacob, 1919; Mr. J. Duncan Pearson, 1920; Mr. Alex. M. Wilson, 1921; Mr. W. F. M. Copeland, 1922; Mr. Charles H. Curtis, 1923; Mr. J. K. Ramsbottom, 1924; Mr. F. Herbert Chapman, 1925; and Mr. W. Poupart, 1926.

Mr. A. F. Dutton.—The winning of the *Daily Mail* Cup for the best scented Carnation has again brought Mr. A. F. Dutton into prominence. Between twenty and twenty-five years ago Mr. Dutton was a frequent and successful exhibitor of Carnations, but in more recent years his exhibits have been few and far between, as his attention has been devoted largely to the production of cut flowers for market. He commenced business as a grower at Bexley Heath, but after a dozen years or so, he took up land at Iver, Buckinghamshire, where he has been established about twenty-five years. At Iver there are eight acres of Carnations, and thirty-two acres of hardy plants, all grown for cut flowers for market. For four years Mr. Dutton has tested his new crimson Carnation, named Mrs. A. J. Cobb, and in all probability he would never have distributed plants of it, but for the recent competition which excited his interest, otherwise the variety would have been grown only for market. Having already described and illustrated his fine new Carnation, there is no need to use further adjectives in its favour. It is bound to become popular. Mr. A. F. Dutton attends to the cultivation of Carnations, Chrysanthemums, etc., at Iver, while Mr. Arthur Dutton acts as salesman, both in Covent Garden Market proper and at the Tavistock Street warehouse, where he sells the flowers grown by his brother. Since winning the Cup the award of the First Class Certificate of the British Carnation Society has been made to Mr. Dutton's new variety, after an inspection of the plants by the B. C. S. Floral Committee at Iver.

MR. A. F. DUTTON.

Royal Commission on Land Drainage.—The King has been pleased to appoint a Royal Commission on Land Drainage with the following Terms of Reference :—"To inquire into the present law relating to land drainage in England and Wales and its administration throughout the country, to consider and report whether any amendment of the law is needed to secure an efficient system of arterial drainage without undue burdens being placed on any particular section of the community, and to make recommendations having regard to all the interests concerned." The members of the Commission will be as follow :—The Rt. Hon. Lord Bledisloe, K.B.E. (Chairman); The Lord Clinton, Lt.-Col. Sir George Courthope, Bt., M.P., Lt.-Col. F. D. W. Drummond, C.B.E., Sir George Etherton, Mr. Leopold Harvey, Major J. W. Hills, M.P., Mr. H. A. Learoyd, M.A., LL.B., Sir Joseph Priestley, K.C., Sir Albert Pritchard, Mr. Rowland R. Robbins, C.B.E., and Mr. Walter R. Smith, with Mr. H. Meadows and Mr. D. B. Toye, O.B.E., as Joint Secretaries, and the Hon. Arthur Peel, Assistant Secretary (unpaid). Since the war, especially as a result of the impetus afforded by the Land Drainage Act, 1918, there have arisen in various drainage districts, all over England and Wales, difficulties of great and increasing magnitude. The main cause of this is probably to be found in the fact that the drainage legislation of this country, which is largely based on a Statute of Henry VIII, is inadequate and unworkable in the light of modern conditions. The Government have therefore come to the conclusion that the whole of the present drainage law requires to be closely examined with a view to possible alteration, and it is with this object in view that the Royal Commission has been appointed. All communications relating to the Royal Commission should be addressed to the Joint Secretaries to the Royal Commission on Land Drainage, Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W. 1.

Classified List of Daffodil Names.—The new *Classified List of Daffodil Names* (1927) brought up to date, is now available for those who specialise in Daffodils, and obtainable from the Royal Horticultural Society for one shilling per copy. In the first *List of Daffodil Names* published, the varieties were not classified, but in 1906 a larger list was issued, and the varieties classified; this method of classification, however, failed to meet with general acceptance and numerous modifications were suggested, consequently the R.H.S. Council re-appointed the Classification Committee in 1909, with the result that the present system was put forward and authorised. Since then some sub-divisions have been added, as in the Leedsii and Triandrus groups. In the new issue there are, in round figures, 2,800 Daffodils named in bold type, each one classified, and if it has gained an Award of Merit, the date of such award is given. It is assumed that all these varieties are in cultivation and useful either for garden or show purposes; but there is another list, occupying forty pages at the end of the booklet, containing well over two thousand names of varieties, either lost to cultivation or surpassed by modern varieties. Altogether about five thousand names are listed!

Capsid Bug in the Wisbech District.—Growers in the Wisbech district are experiencing severe trouble with attacks of Capsid Bugs on Apple trees, and the severity of the infestation is attributed to the large number of Willows which are found in the Wisbech neighbourhood, the Willow being one of the hosts of the pest. It is found that the Capsid bugs are most severe in their attacks on Apple trees with soft, quickly-growing shoots; the large amount of water in the alluvial soil of the Wisbech district is said to be favourable to the development of such growth.

Post Office Concession to Covent Garden Market.—The Postmaster-General, having been asked to install a telegraph office in Covent Garden Market, states that he is willing to allow the Strand, Southampton Street, Branch Post Office to be opened at 7 a.m. instead of 8 a.m. on week-days, from April 1 to September 30 next for the acceptance of telegrams and for the sale of postage stamps. The innovation will be in the nature of an experiment, and the matter will be reviewed at the end of September in order to see whether the amount of business transacted at the earlier hour justifies making the arrangement permanent during the summer months.

Dr. A. Ragionieri.—The fifty-years' jubilee is being celebrated this year by horticulturists of the first hybrid raised—in 1876—by the veteran horticultural botanist, Dr. Attilio Ragionieri. The name of this hybrid is Dieffenbachia Memoria Corsi, a cross between D. Seguine picta and D. Wallisii. Born at Sesto

Florentina, near Florence, in 1856, this indefatigable Italian botanist has raised hybrids in many different families of plants, including Richardias; he is, perhaps, best known for his work amongst Freesias and Ranunculuses. A portrait and appreciation of Dr. Ragionieri appeared in *The Gardeners' Chronicle* of April 19, 1924.

Honour for Belgian Horticultural Official.—We are pleased to record that M. Hector van Orshoven, the Director of Horticulture in the Belgian Ministry of Agriculture, has been made an Officer of the Order of Orange-Nassau. Our congratulations are the warmer as we do not forget the valuable assistance rendered to *The Gardeners' Chronicle* during the war by M. van Orshoven, who for many months edited a page written in French and Flemish by which this paper was enabled to get into touch with the many Belgian refugees who fled to our country in the early days of the German invasion.

Pimpernels.—At a recent meeting of the Linnean Society Miss Eleanor Vachell gave an interesting account of an unusual Anagallis, found in a newly-constituted public park at Coldknap, Barry, in July, 1926. The plant was growing in a border amongst a large colony of normal plants of Anagallis arvensis; it had eleven stems, seven bearing scarlet flowers, and four bearing blue flowers. Two types, A. arvensis, Linn., and A. foemina, Mill., were apparently represented on the same plant, *i.e.*,—Seven stems: Corolla-segments scarlet, edge even, fringed with numerous glandular hairs, calyx two-thirds as long as corolla. Four Stems: Corolla-segments blue, edge denticulate, with very few glandular hairs, calyx as long as corolla. The root appeared normal, no fusion of two roots being visible. The interest of the specimen is that the characteristic features of two species (as usually recognised) are represented, but remain distinct. No parti-coloured flowers suggested hybrid origin: it appears rather that one portion of the plant may have reverted. The capsules on the seven stems bearing scarlet flowers were considerably in advance of those on the four stems bearing blue flowers. Dr. Rendle read the following letter from the Rev. Canon F. W. Galpin on the subject of Miss Vachell's paper:—"With reference to Miss Vachell's interesting exhibit, I should like to state that, in the year 1924, a great quantity of Anagallis foemina, together with an abundance of the common A. arvensis, was growing in a field near Rivenhall Place, Witham. My neighbour, Mrs. Bradhurst, who lives at The Place, and is a good field-botanist, observed a plant on which three stems bore red flowers and one stem blue. She transferred the plant to her garden, as the field was shortly coming under cultivation again; there I saw it, but unfortunately all the flowers had dropped. I am glad, however, that her find, which was somewhat doubted at the time, has now received ample corroboration. I may add that, after a prolonged search, I failed to find any similar specimen; nor did I observe any parti-coloured hybridization between the two types." In the discussion which followed, Dr. Stapf suggested that Miss Vachell's plant was an instance of somatic segregation, and that these two species should be subjected to genetic experiment, which might throw much light on the problem of our smaller, wild Pimpernels.

Honour for M. Louis Gentil.—We are gratified to learn that M. Louis Gentil, Curator of the Brussels Botanic Garden and Editor of our contemporary, *La Tribune Horticole*, has been made an Officer of the French Order of L'Instruction Publique. Many of our readers will remember that during five years of his stay in London, M. Gentil acted as Secretary of the now defunct Société Française d'Horticulture de Londres.

Sweet Pea Exhibition in Brussels.—From June 25 to 27 this year, an exhibition of Sweet Peas will take place in the Botanic Gardens in Brussels. This will be the first occasion on which entries are invited from foreign, as well as Belgian, growers. The schedule may be obtained from the Secretary of the Sweet Pea Society, 31, Rue de la Démocratie, Anderlecht, Brussels. Both amateurs and professional growers are invited to compete, and many valuable cups and other prizes are being offered.

Appointments for the Ensuing Week.—TUESDAY, APRIL 19: Winchester Horticultural Society's meeting. WEDNESDAY, APRIL 20: Herefordshire Spring Flower Show; Royal Gardeners' Orphan Fund meeting. THURSDAY, APRIL 21: North of England Horticultural Society's show (two days); Midland Daffodil Society's show (two days). FRIDAY, APRIL 22: National Rose Society's show; Manchester and North of England Orchid Society's meeting.

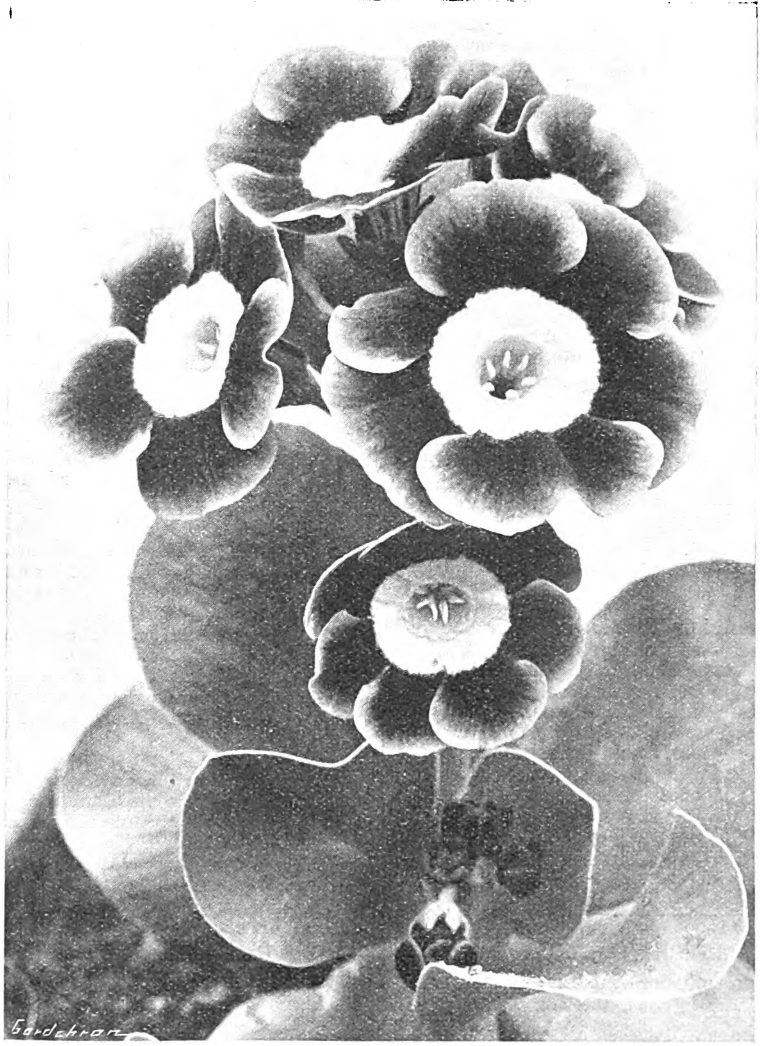


FIG. 129.—AURICULA DUCHESS OF YORK.

R.H.S. Award of Merit, April 5. Flowers plum-purple and soft yellow. Shown by Mr. James Douglas (see p. 255.)

"Gardeners' Chronicle" Seventy-five Years Ago.—*Orchids for the Million.*—The beginners in Orchid-growing have now an opportunity of buying cheap the materials of their apprenticeship. The million, as our friend "Dodman" calls them, have a great chance; for shillings they may procure what, under other circumstances, might cost them pounds. Seven- or eight-and-twenty chests of Laelias, Chysids, Lycastes, Barkerias, Cattleyas, Arpophylls; Epidendrum Skinneri, Stamfordium and bicornutum; Oncidium leucochilum, Odontoglossum pulchellum, and all the *élite* of Guatemalian epiphytes come to the hammer at Stevens's on Tuesday next. The lots consist of huge masses of rarities, or of what is better, first-class ornamental species, any one of which would stock a house for ever. Some are from the forests and jungles of Guatemala, others from the cold table land of Rachiquel, where they are actually gathered in a snow storm; twelve hundred square miles of country are said to have been ransacked by Indians in search of materials for this Orchid sale. In all respects the lots are of a very interesting description; and even if a man is not a buyer, still we would have him visit the collection, so that he may see how Orchids grow at home; what masses of entangled roots, dead sticks and leaves afford them sustenance; what swarms of Ferns and other plants crawl among them, what layers upon layers of the most humid but not wet, most rich but not stimulating, most cool but not cold, most rottable but not rotten, matters they delight in; and how, as they themselves decay, they furnish pabulum, on which they also feed and flourish by devouring their own substance. All these things the Orchid-grower may see and largely profit by, has he but skill to interpret the universal language in which nature speaks to those who can decipher the living characters in which her operations are emblazoned in woods and fields and on rocks and mountain tops. *Gard. Chron., April* 17, 1852.

Publications Received.—*Magnolias,* by J. G. Millais, Illustrated; Longmans, Green and Co., Ltd., 39, Paternoster Row, E.C.4; price 32/- net.—*Vegetable Gardening,* by A. J. Macself, Thornton Butterworth, Ltd., 15, Bedford Street, W.C.2.; price 6/- net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Catesetum, Cycnoches and Mormodes.—These quaint and interesting Orchids all succeed under similar conditions, both as regards temperature and rooting material. The plants are commencing to grow after their long rest during the winter, and should receive water at the roots at intervals to prevent the pseudo-bulbs from shrivelling. They need repotting each year, and this is best done when the new growths are developing roots from their bases. Shake all the old compost from the plants, cut away all decayed portions and dead roots, and remove all useless back pseudo-bulbs. Somewhat deep pans, which can be suspended, are the most suitable receptacles, and they should be well drained with clean crocks.

Compost.—A suitable rooting-medium for these Orchids consists of a mixture of Osmunda, peat fibre, and Sphagnum-moss, cut into rather fine portions, thoroughly mixed together and warmed before being used. Employ pans of a suitable size, but guard against over-potting, as all these plants resent too much material about their roots. Place the compost firmly around the bases of the pseudo-bulbs. After repotting, water should be applied with extreme care until the roots and young growths are developing freely, as the latter are liable to decay if the compost becomes too wet when they are in a young state. When the young growths are well-rooted and roots plentiful, liberal supplies of water will be necessary until the season's growth is completed. During the early stages of growth, slight shading is necessary but later the plants may receive more direct sunshine.

Temperatures of the Houses.—The weather in April is often very changeable; periods of sunshine and shade, heat and cold, render it almost impossible to maintain the temperatures of the different houses at a normal level, but much may be done by a judicious use of the blinds and ventilators, even in the most exposed districts, to minimise the fluctuation of temperature. As the weather improves the temperatures of all the houses may be gradually increased, more atmospheric moisture promoted, and the general conditions made more conducive to growth.

THE KITCHEN GARDEN.

By R. H. Crookford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Globe Artichokes.—Remove all litter and weeds from these plants and apply a liberal dressing of well-rotted manure, which should be lightly forked into the soil. Later, when the plants are growing freely, copious soakings of liquid manure should be given the roots on frequent occasions. This stimulant will prove of great assistance in helping to produce very fine heads of this highly esteemed vegetable. In making fresh plantations of this vegetable, set out strong plants about four feet apart on deeply-trenched, heavily manured ground.

Brassicas.—About this date is a good time for sowing seeds to provide the main crops of winter and spring Broccoli, late Kales, Cabbages and Savoys. Sow thinly and protect the seeds from birds.

Herb Border.—The herb border should be examined and any weak subjects renewed at once. Prepare a fresh site on which to plant herbs which are being raised under glass.

Seakale Beet.—This useful vegetable should now be sown in well-manured ground. The leaves of this plant are a good substitute for Spinach, and the thick, succulent stems may be blanched and used as Seakale. Seakale Beet is hardy, does not readily run to seed, and may be relied on to give a constant supply of leaves throughout the season.

Onions.—Strong plants growing in boxes may be planted in the open after they have been hardened thoroughly. The ground having been well-trenched and manured previously, should now be dressed with a liberal amount of burnt refuse and fair quantities of bone-meal and soot, all of which should be either forked or well-raked in the soil. Make the surface firm by treading, and again rake it to promote a good tilth. Choose a warm day for setting out the young plants, which should be lifted carefully from the boxes with a trowel in order to disturb the roots so little as possible. Plant very firmly, and do not bury the stem deeply. Should the weather be dry at the time of planting, water the plants and damp the foliage during the afternoons of very warm days. Allow a distance of not less than fifteen inches between the rows and twelve inches between the plants. If the latter are required for exhibition allow eighteen inches between the rows. Should the bed be a large one, allow a space of two feet between every four rows to enable the necessary attention to the plants to be given without stepping amongst them. Keep the foliage lightly dusted with old soot as a deterrent to Onion-fly. An occasional spraying with paraffin emulsion will also help to ward off this pest. Free use should be made of the Dutch hoe (once a week, if possible) as stirring the soil will do much to promote healthy growth.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Lachenalias.—These useful plants should receive every attention during the next few weeks. After Lachenalias have flowered they are often stood in some odd corner or under the stage, but if the plants are to be grown and flowered to perfection they must receive every attention until such time as the growths turn yellow and gradually die down, after which they should be placed on a shelf fully exposed to the sun, and be allowed to rest until they are repotted in August. Freesias need the same treatment.

Souvenir de la Malmaison Carnations.—Two-year-old plants of Souvenir de la Malmaisons that were shifted into eight-inch pots to produce a wealth of bloom, have filled their receptacles with roots and will be sending up their flower stems. If the plants are not too vigorous, they may be fed with Carnation manure, or soot-water, which will provide a good change of plant food. These Carnations resent over-feeding and, given excessive supplies of organic manures, the flowers are inclined to produce hard centres. When the plants are fed judiciously, the flowers show a marked improvement, both in quality and colour. Layers rooted last season, that are growing in four-and-a-half inch or six-inch pots, require much the same treatment with regard to feeding, but here again, I would strongly advise the grower to err on the weak side, otherwise the flowers will probably show signs of coarseness. Support the growths with neat stakes to prevent damage to the flower-stems, and disbud the flowers at the earliest opportunity. Greenfly is very partial to Malmaison Carnations, and should never be allowed to infest the plants; light fumigations will keep these pests in check. The house in which the plants are growing should be ventilated freely on all favourable occasions, and very little warmth from the hot-water-pipes will be necessary now, except on very cold nights, for these Carnations resent an arid atmosphere at all stages of their growth.

Cyclamens.—Plants raised from seeds sown last August and potted on into small receptacles as previously advised, should now be ready for transferring to three-and-a-half-inch pots. The compost for this potting may consist of equal parts of fibrous loam and leaf-mould, with a liberal dash of silver sand and old bricks broken very small to ensure a free passage of water. Cyclamens delight in plenty of moisture at the roots, but at the same time they dislike anything approaching stagnation. After potting them they should be stood on a moist base in a fairly cool house near the roof-glass and shaded from bright sunshine. Keep a sharp watch for mite and aphis; the former pest may be checked by fumigating the plants with sulphur, and the latter by the use of a nicotine insecticide.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Figs in Borders.—Trained Fig trees in successional houses will now require constant attention in thinning, stopping and tying the shoots. The extension system of training is the simplest of all methods of growing good Figs, where space admits. As the roots of the trees are growing in restricted borders, the development of surface roots should be encouraged by applying light mulchings of rich manure, and feeding them with weak liquid manure, soot-water or guano water on alternate waterings. Air should be admitted when the temperature rises to 70°, and the temperature may be allowed to rise gradually to 80° before closing the house early in the day with plenty of sun-heat and atmospheric moisture.

Late Figs.—The latest Fig houses should be kept cool, dry and well-ventilated until the buds at the ends of the shoots begin to start into growth. If, however, fire-heat is available, there will be no necessity to delay forcing, for early growth may be protected from injury by late frosts. If fire-heat is not available, close the house early in the afternoons, make the fullest use of sun-heat, and syringe the trees on the mornings of fine days only.

Early Melons.—The earliest fruits will soon require to be supported, and for this purpose nets are the safest to use, for when square boards are requisitioned there is a liability of them being upset when being touched by any object, and a sudden knock often detaches the fruit from the stalk. The night temperature of the house may range from 68° to 73°, admitting a little air at night whenever the weather is fine. Attend to top-dressing and feeding of the roots, especially of plants growing in pots. Stop the shoots of successional plants after the requisite number of fruits has set; for these successional plants a night temperature of 65° to 68° will be sufficient. Be sparing in the application of water and liquid stimulants at this early stage, for an excess of moisture is conducive to weak foliage, which is readily injured by hot sunshine.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Bamboos.—The various members of the Bamboo family may be transplanted now. In gardens generally, there are many situations where Bamboos could be planted with excellent effect, but always select a sheltered position, as cold, cutting winds are the chief cause of failure with these plants.

Canterbury Bells.—Where good specimens are required for autumn-planting, a stock of Canterbury Bells should now be raised from seeds sown in a cold frame. When of a suitable size to handle, the seedlings should be pricked off a few inches apart, in seed boxes. When large enough and hardened off, they should be planted out in the reserve garden. In the immediate neighbourhood of London very large plants will not withstand the winter unless they are potted and grown in cold frames; they do not winter well also in damp, cold districts. In these circumstances, growers in unfavourable districts should defer sowing until next month and be content with smaller plants.

Campanula pyramidalis and variety alba.—Chimney Campanulas are excellent plants for furnishing lawn beds or for grouping in the mixed border. Where it is desired to grow these plants for bedding purposes, seeds should be sown next month. Young plants raised from seeds sown last year and wintered in boxes should now be planted out in the nursery garden, where they should make fine specimens for putting in the open in the autumn.

Forcing Bulbs.—Bulbs that have been grown in pots for conservatory decoration are often thrown way, yet many of them, especially Narcissi, may be successfully naturalised in grass, or they may be planted out in the nursery and grown on for a season or two. It is not necessary, nor indeed desirable, to dry them off; they may be merely turned out of their pots, the soil shaken from the roots and planted forthwith, either in the grass or in the nursery garden. The florists' varieties of Hyacinths are also excellent for naturalising in grass, where they will come up for many years in situations that suit Narcissi. The plants usually develop several small inflorescences instead of one large one, and this renders them more suitable for this particular purpose. It has been for many years our practice at Kew to turn the plants out of their pots when they have finished flowering and plant them out in grassy places, the essentials for success being a soft, spongy turf.

Eranthis hyemalis.—The Winter Aconite is a charming subject for under-planting large beds of shrubs or naturalising in open, woody places. In suitable conditions it establishes itself and increases freely in grass. If possible, the plants should be lifted, divided and replanted just before the foliage dies down.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Peach and Nectarine Trees.—So soon as the young growths are sufficiently advanced, disbudding should be commenced and carried on at intervals throughout the season. It is prudent not to thin too severely at first, but remove just so many shoots as will not cause a check to the trees and the fruits that have just formed. In doing this work retain one good shoot at the base of each of last season's fruiting growths and on the upper side. This new shoot will furnish fruits next year and take the place of the older one when it is removed. When disbudding the trees for the first time, rub off all foreright shoots and a few others at intervals along the current season's fruiting wood. After an interval of ten or twelve days, if the weather is warm and favourable to rapid growth, more shoots that are not wanted should be removed, and the work should be continued from time to time until only sufficient required for furnishing the space are left. So soon as the fruits are well set and well on the move, watch for aphis, and if the pest is detected, syringe the trees on a few occasions with clear water, after which wash the foliage with XL All insecticide, using it at a weak strength at this early stage. See that every part of the leaves are washed thoroughly so that the new growth is not checked.

Birds and Fruit Buds.—Fruit trees are all showing well for bloom, and if the weather proves favourable there should be heavy crops of fruit. Keep a watchful eye on birds in the fruit garden. Sparrows are, as a rule, very troublesome and destructive to the flowers of the Pear, Apple, Sweet Cherry and Plum when they are about to expand. It is frequently necessary to protect wall trees with netting to save the crop. Syringing with soap-suds and Quassia extract, followed by a liberal dusting with soot, lime and wood-ash, will help to keep birds in check. Bullfinches and tits do much harm to Plums, Damsons, etc., and should be checked.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Perpetual Carnations.—All young plants rooted early in the year are ready for transfering to larger pots, and this should be done before they become pot-bound. Four-inch receptacles are suitable for this potting. The compost should consist of good loam mixed with a small quantity of leaf-mould and sand, with a dusting of soot. The plants should henceforth be grown in quite cool conditions, and when they are established in their new pots the leading shoot should be removed by pinching or jerking it right out, at a suitable joint, to favour the development of numerous side-shoots. Older plants which have been flowering all the winter will now require attention, and should be given a top-dressing of some suitable Carnation manure, at intervals, according to the conditions of the plants. All side-shoots on the flower stems should be pinched out. The plants should be kept erect by means of stakes or other supports, in order to obtain long, straight stems. Ventilate the house freely, and keep a close watch for the first sign of green-fly, which should be eradicated at once.

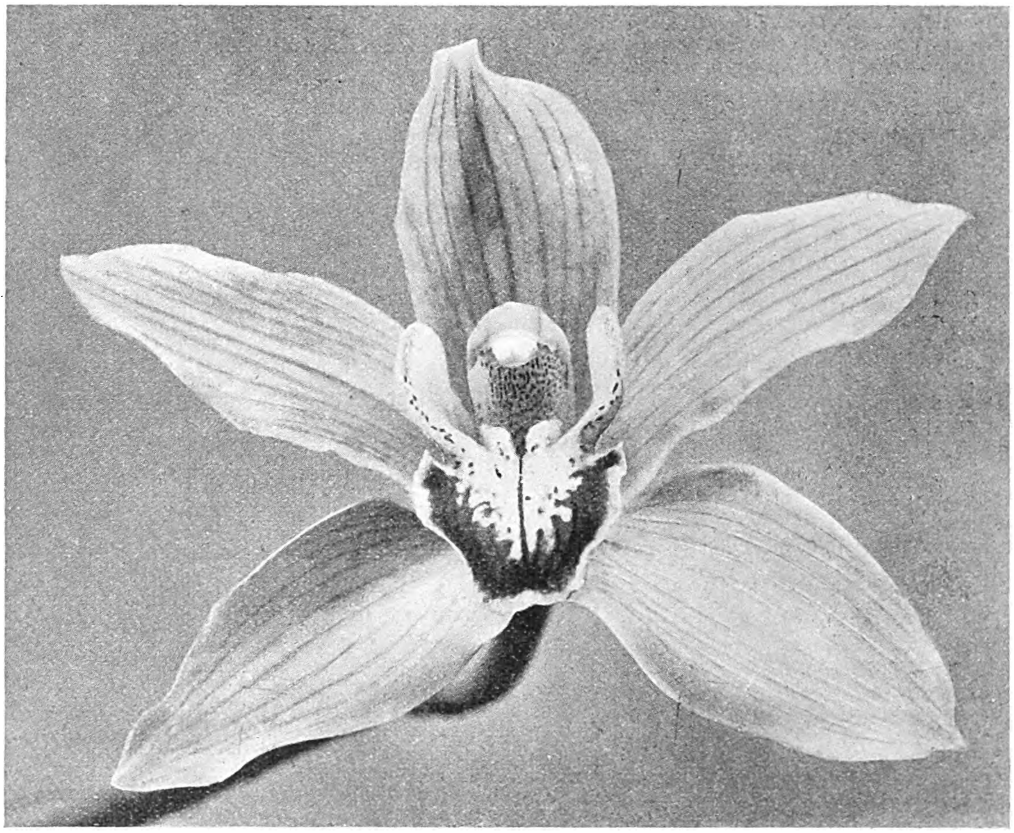


FIG. 130.—CYMBIDIUM PAUWELSII, ANKERSMIT'S VAR.

R.H.S. First-Class Certificate, April 5. Flowers greenish-yellow, pink, bronze, cream and brown.

Shown by Messrs. Cowan and Co. (see p. 255).

Planting Evergreen Shrubs.—Evergreen shrubs should now be planted, and where large specimens have to be shifted, it is understood that these have been prepared for removal by cutting a trench around them about twelve months in advance, and severing all thong-like roots encountered. This preparation enables the plants to develop numerous young roots in a compact ball of soil so that they will transplant successfully. Young shrubs which have been transplanted while in the nursery at regular intervals, will present no difficulties in moving them, and choicer ones grown in pots may be planted at almost any time. In the milder districts, there is an almost bewildering choice of evergreen shrubs which may be grown successfuly, such as Arbutus, Andromeda, Aristotelia, Azara, Benthamia, Callistemon, Camellia, Carpenteria, Ceanothus, Choisya, Clethra and Colletia, as well as choicer subjects, such as Lomatia, Embothrium, Hoheria and Tricuspidaria. The evergreen species of Olearia, Escallonia and Berberis provide us with many outstanding free-flowering and fine-foliaged subjects.

Cyclamens.—These plants are now passing out of flower and should be rested for a few months by gradually reducing the supply of water and standing them in a sunny place to thoroughly ripen the corms. Old plants which have passed their useful stage may be discarded, and the younger ones ripened carefully, so that when they are required to be repotted in July they will be in a suitable condition. Too often one sees Cyclamens lying under the plant stages, or otherwise totally neglected during the summer, and it is no wonder that plants treated in this manner fail. Two-year-old corms produce a wealth of foliage and flowers from November to April. Seedlings sown last July should now be filling their first small pots with roots and may be shifted into five-inch pots, using, as compost, equal parts of turfy loam and flaky leaf-mould, mixed with a small quantity of dried cow-manure and sufficient sand to render the compost porous. These seedlings should not be rested the first year, but kept growing actively in a partially-shaded house or frame, and syringed freely in order to keep them free from insect pests.

Asparagus.—Asparagus plants are now sending up succulent shoots, and if not already applied, a liberal dressing of agricultural salt should be given, preferably during showery weather. This dressing acts not only as a stimulant to the young growth, but also as a deterrent to slugs; a dressing of sulphate of ammonia may be applied later when the crop is further advanced. All usable shoots should be cut at regular intervals, and if not required for immediate use, tied into bundles and stood in shallow trays in water.

INDOOR PLANTS.

BEGONIA MANICATA.

This Begonia is in bloom from the New Year until well into April, and is the finest of the winter-flowering species; indeed, it rivals from a decorative point of view even the best of the hybrid Begonias. It is not suitable for cultivating on a large scale for market purposes in the same manner as Begonia Gloire de Lorraine and its varieties, because its habit does not render it suitable for packing and travelling, but for conservatory and greenhouse decoration in private establishments it is ideal, and it is also extremely useful for indoor decoration.

Unfortunately, the species does not appear to be well-known, but it is certainly worthy of more extended cultivation.

April or May is a suitable time to insert cuttings, and year-old plants make specimens a foot or more in height, with large, spreading leaves. The individual flowers are rather small, and of a beautiful pale pink colour; they are dipetalous and borne very freely in loose panicles on peduncles two feet or more in length. The whole effect of the plant is decidedly graceful and it remains in good condition for a long period.

Plants potted on and grown a second year make wonderfully fine specimens and they develop much finer trusses of bloom than one-year-old stock. Plants of this description are very useful for furnishing the beds in the conservatory.

STROBILANTHES DYERIANUS.

This stove or intermediate-house Acanthaceous plant is generally grown for its beautiful leaves, which are extremely attractive, especially when young. They are shaded with pink, and in addition, possess a violet, metallic lustre such as is not frequently met with in foliage plants. Strobilanthes Dyerianus is also worth growing as a flowering plant. The lilac, tubular flowers are marbled with purple and borne in a terminal spike. *T. H. Everett.*

TREES AND SHRUBS.

RHODODENDRON ARGYROPHYLLUM.

Discovered by David, and first described by Franchet in 1886, this variable species (see Fig. 133), was introduced by Mr. E. H. Wilson, who found it in 1904, when collecting for Messrs. James Veitch and Sons. It is quite a common species in Szechuan at altitudes of from 6,500 to 11,500 feet. Although the usual colour of the flowers is pale pink, there are numerous forms, some with deeper colouring, some blush white and others pink with white spots. Rehder and Wilson (*Plantae Wilsonianae*) record two distinct varieties *i.e.,* R. argyrophyllum cupulare and R. a. omeiense, the former having a broadly campanulate or cup-shaped corolla and the latter differing from the type in having a dun-coloured tomentum on the undersides of the leaves instead of the usual white or silvery tomentum.

R. argyrophyllum is evergreen and grows from six feet to twenty feet high, but in this country it grows slowly, although it is quite hardy. The broadly campanulate flowers are one-and-a-half-inch wide and borne in loose trusses of from six to eight.

CERCIDIPHYLLUM JAPONICUM.

In early April, this shrub is very lovely, more especially in bright sunlight, when the shell-pink suffusion in the colouring of the delicate young leaves gives a well-grown specimen a charming appearance. In the autumn the heart-shaped leaves of fine texture turn a brilliant and arresting red, a flambuoyant beauty in direct contrast to the delicate loveliness they assume in spring.

The plant is quite hardy and grows freely and easily in almost any soil, in an open situation; if any preference is noticeable, it is for a rich deep, loam. C. japonicum is certainly one of the treasures of the spring and autumn garden, and is easily propagated by cuttings of half-ripened wood inserted in the summer. *A.*

POTENTILLA FRUTICOSA.

Of the shrubby species of Potentilla, the subject of this note is the best, and is well worth growing on account of its late season of blooming, which lasts from June onwards for two months or more.

It is a native of many parts of the Northern Hemisphere, and is found wild in certain parts of northern Britain and Ireland. It forms a dense bush, from two to three feet high, and is very effective when in bloom. The deep yellow flowers are an inch or more in diameter, and are produced with great freedom.

The plant is useful for grouping in the shrubbery, or in beds on the outlying portions of the lawn. It succeeds well in good, loamy soil, and is readily propagated by means of seeds.

ALNUS OREGONA.

Large numbers of hardy Alders bloom early in the year, but none is more beautiful than the Oregon Alder in late February or March, when it produces its handsome male catkins from the tips of slender shoots.

The catkins are borne in bunches of from three to five, and are from four inches to six inches in length.

Alnus oregona attains a height of forty to fifty feet in this country when fully grown, and succeeds best when planted in a deep, rich, moist loam. *T.*

FLOWER GARDEN.

ARCTOTIS SCAPIGERA.

Seeds of this plant, which received the R.H.S. Award of Merit on April 5, were received from South Africa in February, 1926, under the name of A. acaulis; they germinated readily in a warm house, and many of the seedlings were in full flower in July.

On plants being sent to Kew it was pointed out that it was something quite distinct from the A. acaulis as known there, which was always found to bear yellow flowers only. Whatever name this fine and showy Arctotis may eventually bear, there is no question about its merits as a greenhouse or summer bedding plant.

A batch of about one hundred year-old plants shows great diversity, both in flower and foliage, the blooms varying from rich red to the most brilliant orange; some bear blossoms four inches in diameter, others smaller, but none the less striking and showy.

The great merit of the plant is the ease with which it may be cultivated; its vigour is remarkable, and when pot-grown, it soon fills an eight-inch pot with a mass of roots and produces great quantities of flowers.

A. scapigera may be had in bloom any month of the year; if grown in a warm house, and provided the flowers are pollenated, good seed is produced in abundance.

At present, we have some two hundred young plants raised from home-saved seeds of the best forms. It can be divided with the greatest ease and these divisions seem quite as vigorous as plants raised from seeds.

It is almost impossible to describe the foliage, as no two plants are exactly alike. On the same specimen may be found leaves that are entire, others lyrate and pinnatifid; the upper surface is of a dull green, the underside white and woolly. Some plants have white foliage similar to the well-known Centaurea candidissima.

Another fine Arctotis is A. undulata; this species is also in flower, and was introduced by Mrs. Lloyd Edwards a few years ago. It shows the same fine colour range but there is less diversity in the foliage; the flowers are carried on footstalks two feet long. Like A. scapigera, it is a perennial of the easiest cultivation. *T. Hay.*

ASTERS.

Callistephus chinensis, the China Aster, in its many beautiful single and double varieties, is deservedly popular for garden and general decorative work. The seeds should be sown now thinly in boxes, as the seedlings are very prone to damping off, and overcrowding in their younger stages will probably lead to attacks of Botrytis later.

As Asters transplant readily, even when they are coming into flower, it is not necessary to plant them direct in their flowering quarters, but, if desired, they may be planted in the reserve garden, from which they may be lifted later to refurnish beds where early-flowering plants are over. *J. C.*

HARDY FLOWER BORDER.

ANCHUSA ITALICA DROPMORE VARIETY.

The subject of this note is a well-known plant, and is invaluable for planting in groups in the herbaceous border or for filling beds on the lawn. As a garden subject it is infinitely better than the type, the flowers being much larger—nearly one-and-a-half inch in diameter—and of an intense blue. They are borne in great profusion, so that a group of plants appears as a sheet of blue when viewed from a little distance.

This Anchusa remains in bloom for a long period, and the spikes last for a long time when cut and placed in water. Given good treatment, a vigorous specimen will attain a height of six feet or more, and in due season will be clothed from base to summit with bloom.

Seeds are not a satisfactory means of increase as many of the seedlings do not come true. The best method of propagating the plant is from root-cuttings. These should be taken from plants lifted during the winter, cut into pieces about two inches long, and inserted in pots of sandy soil. The pots should be stood in a cold frame and top growth will appear in a few weeks. The young plants should be grown on for planting out so soon as danger from frost is over.

A group of this Anchusa, planted in a suitable situation in the wilder portion of the garden, produces a wonderful effect when in flower. *T. H. Everett.*

CULTURAL MEMORANDA.

PROPAGATING ANTIRRHINUMS AND OTHER FLOWERS FROM CUTTINGS.

Last year I required a large number of Antirrhinums for bedding, and as is my usual plan, I sowed the seeds about the end of January in order to get the plants well forward and hardened before they were required for planting in the beds. At the time of pricking them off for the first time, I found that it would be impossible to get the necessary number, so I had the alternative of buying more seeds, which would give later plants, or finding some other means of making good the deficit. As a matter of fact, I did both.

The young plants which were pricked off into boxes did well, and in a warm temperature they soon became established in the boxes. At that time, the idea occurred to me that it might be possible to root the tops, and in order to test this, I put in about a dozen tops, cutting these off with a pair of scissors just above the lowest pair of leaves, so that my cuttings were mere tops with a bunch of leaves at the extremity. The shoots were dibbled into wet sand in a closed propagator standing in a vinery. In ten days they had rooted, and on the success of this experiment I at once took the tops off four hundred plants and dibbled them into the sand propagator. Practically all of them rooted, and were in due course boxed up and took their place among the seedling Antirrhinums.

As I was still a bit sceptical regarding the ultimate success of the experiment, so far as flowering was concerned, I kept them marked, and eventually made a separate bed of them. Though they were about a week later in flowering than the seedlings, the tops of which were not taken off, it would have been otherwise difficult to see any difference between the beds when the plants were fully in flower. The Antirrhinums from which the cuttings were taken were planted out also and gave good results. The date when the small cuttings were taken was April 20, and on April 28 I was able to remove and box over two hundred rooted cuttings, the remainder being put back again for a few days because they were not sufficiently rooted.

I find also that it is quite possible to root way. pieces of Heliotrope in precisely the same I required about 1,200 plants for bedding by May or June and had only one hundred cuttings but by rooting these and then snipping off the tops with a pair of scissors so soon as they were long enough to enable this to be done and still leave some buds at the base, I was able to get well over the number required. Usually these rooted in about ten days, and after another ten days the tops were taken off and put into the propagator.

I find also that it is easy to root internodal cuttings of the mauve Nepeta Mussinii. These also were snipped off with scissors, not below a joint as is usual, but above it so that there was no need to remove any of the leaves, and only the one cut of the scissors was needed.

The cuttings were taken from plants which had been grown beneath the shelter of a south wall so that the growths were well forward. The date of putting them in the propagator was February 16, and a later batch was inserted on April 6. The first lot was rooted by March 1, and the second lot on April 20, making about a fortnight in each case. The plants were boxed and eventually planted among Roses to add a little colour, but they grew so well that I was forced to clip them back with sheep shears late in July to prevent them from smothering the Roses, which were set at two feet apart. I merely give these notes for the benefit of those who, like myself, have sometimes to propagate plants in a hurry.

Doubtless there are many other plants which could be successfully rooted as internodal cuttings. *William F. Rowles, Wroxham Hall Gardens, Norwich.*

ALPINE GARDEN.

ERYTHRONIUM REVOLUTUM PINK BEAUTY.

The nomenclature of the Erythroniums, or Dog's-Tooth Violets, is a little obscure, and some would class the one named Pink Beauty with another species than revolutum. I am, however, following the classification of a good authority. It is just coming into flower with me and, to-day (April 4) looks as if it would be open fully in a few days.

I have had this Dog's-Tooth Violet for many years; it was removed six years ago to its present position in a border facing south, where it spears through a plant of one of Backhouse's varieties of Erica carnea. It looks delightful there, with its large, lovely, marbled leaves of deep green and white, and its handsome, charmingly coloured pink flowers on stems about nine inches high. There are brown tinges on the leaves which add to the attractions of the foliage.

The plant does not increase rapidly with me, but the necessity of removing it when in flower is not conducive to increase, and it has another removal in store in this month of April. However, I am confident that it will not suffer if due care is taken of it. I regard Pink Beauty as one of the most fascinating of the American Erythroniums. *S. Arnott.*

STACHYS CORSICA.

This uncommon species is a charming carpeting plant for the rock garden. Being of easy culture and rapid in growth, it is deserving of wider cultivation than it at present enjoys. It is of dwarf, prostrate habit, forming a dense carpet of small, bright green leaves, which are about half-an-inch in length, ovate, with broadly crenated margins and blunt apices. The flowers are produced throughout the summer in such profusion as to practically cover the whole plant with a sheet of pink-tinted cream, the individual, large-lipped blooms being of considerable size for so small a plant.

S. corsica is a native of Corsica and Sardenia, where it is to be found chiefly in cornfields. To secure the best results in the rock garden it should be planted in light, well-drained soil in a sunny position, under which conditions it will survive the winter.

As indicated by the accompanying illustration (Fig. 131), it is a useful subject for a display in late spring in the alpine house. *A. G. F.*

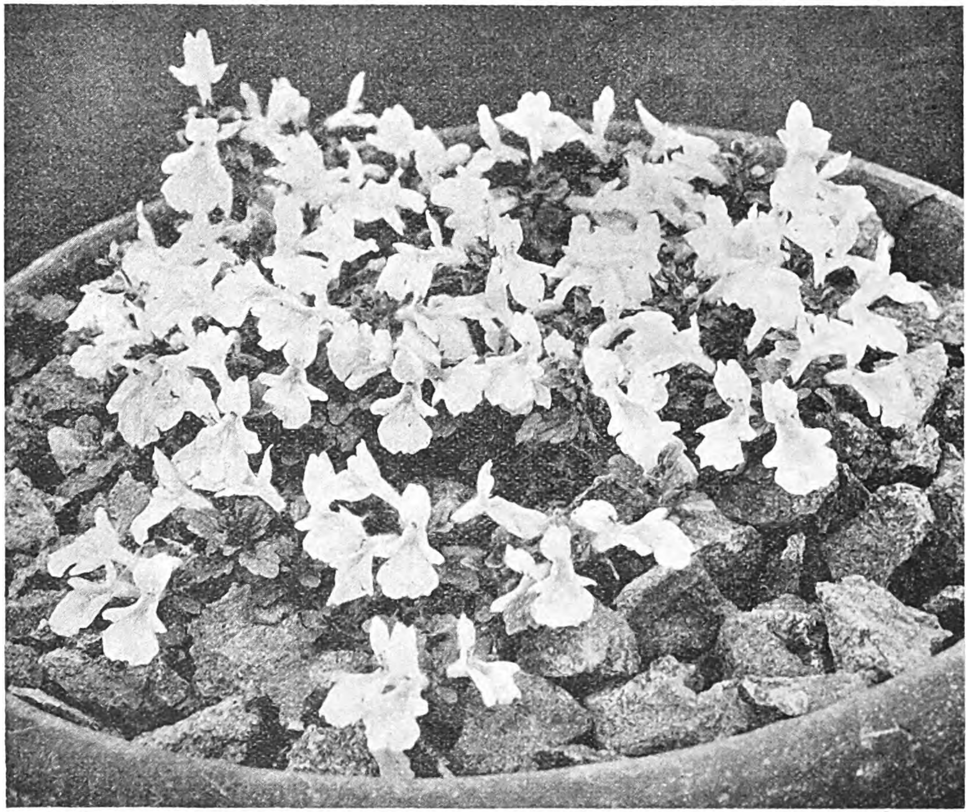


FIG. 131.—STACHYS CORSICA.

TWO ROCKERY CRANESBILLS.

Erodium chamaedryoides is the gem of the family. It is a native of the Balearic Isles and Corsica and forms a tuft, half-an-inch high, of dark green, scalloped foliage. From June to September the plant produces numerous rose-veined, white flowers, singly on stalks one inch tall. A sunny ledge should be chosen for this Cranesbill, and a deep, light soil, as it roots deeply.

E. corsicum, from Corsica and Sardinia, is a larger plant forming mats of silvery foliage covered with down, and producing glowing rose-pink flowers on three-inch stems. It should have an equally sunny, but not so choice a place as the above. *L. T.*

HABERLEA RHODOPENSIS.

This Haberlea is a beautiful companion to Ramondia, and will thrive under similar conditions. The horizontal position usually recommended for this and Ramondias is by no means essential, provided stagnant moisture does not settle around the crowns. I recommend arranging the plants on a slightly elevated position: some of the finest specimens I have seen were grown in this way.

The rosettes of leaves are deep green and corrugated like those of Ramondia. From the stems arise long, tubular, drooping flowers of a pretty shade of lilac, with a yellow throat. *G. L.*

BOG GARDEN.

PRIMULA ROSEA.

This Himalayan Primula is now in full beauty of flowering, before the foliage is fully developed. The stout pedicels are from four inches to six inches long and surmounted by umbels of bright rose-coloured buds, turning to a bright rosy carmine colour as the flowers develop gradually.

The foliage lies close to the ground in rosette formation until after flowering, when the leaves commence to develop; whilst, at the same time, the flower pedicels elongate somewhat as the seed capsules are formed.

An admirable situation for this little gem is on the edge of a stream where the roots can obtain abundant moisture; often the roots will hang down into the stream.

Every two or three years, or when the plants appear to be of poor quality, they should be lifted after flowering and replanted in turves of good, fibrous loam, by the stream's edge, so that whilst new roots are forming additional nourishment may also be provided for the developing crowns. The plants are often slightly lifted out of the soil by the action of frost, and should be made firm again by applying a top-dressing of leaves and sand, and then pressing the crowns gently into the turves.

This Primula may be grown successfully in pots for use in the alpine house. Given the necessary requirements, Primula rosea should flourish almost anywhere, and those growing it will assuredly be rewarded adequately. *T. D. B.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden W.C. 2.

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc. but they cannot be responsible for loss or injury.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER, *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Local News. -*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

IDEAL GARDENS AND PLANT LORE.

I.—A Garden of Adonis-Flowers.

> "That garden where
> Venus with her revived Adonis spend
> Their pleasant hours." *Massinger.*

My old-time dream has never been fulfilled. It was my wish to have sufficient leisure, wealth and land to lay out a series of beds, parterres or gardens, and fill them with flowers and plants relating to saints and divinities. heroes and virgins, who have left their special imprint on our garden and plant-lore. A border was to be devoted to Venus, and a bed to her successor the Virgin; Hercules and Juno would, perhaps, have found a place, and the flowers of St. John would have claimed a site, for he has given us much. And thus, as I roamed at leisure from point to point, my memory would have been refreshed concerning the great and good who, either in legend and history, in myth or action, in poetry and in prose, have enriched our lives, set us noble examples, or embodied for us in tradition or song many things relating to the past which ought not to be forgotten by those who inherit so great a legacy.

It is not claimed that the idea is an entirely new one. At Stratford, for example, a garden is devoted to the plants which are mentioned by Shakespeare. Elsewhere is to be found a Garden of Bible Plants, and other attempts to put this thought into practice. It might be yet further extended, and gardens devoted to Paradise Lost or the poems of Milton, to Dante, Homer and others. A Canticles' Garden, containing all the plants to which allusion is made in the Song of Songs, a Virgil Garden on the same lines, or a border stocked with the plants which are sung by Horace, would each and all prove instructive and interesting. What a variety of legends and traditions, what history, poetry, science and lore of many kinds would gather around such beds and borders, and how valuable would they not become when used for the purpose of teaching the subjects to our children and scholars.

That others may carry out the suggestion, if they so desire, it is proposed to take up in turn some of these poets and authors, saints, heroes or divinities, enumerating the plants which are associated with their names or works, and giving such particulars relating to the plant-lore and legends connected with them as may prove most attractive or instructive. To begin with, a survey may be made of the various plants which would in this way claim a place in a new Garden of Adonis.

It was pointed out in a previous article* that the term "Gardens of Adonis" is erroneously limited by some writers to the pots or baskets which were sown with Lettuce, Fennel, Cress and other plants which soon withered and died. Milton, who was a classical scholar, uses the term (as does Massinger, whom I have quoted at the head of this article) in quite another sense, when he tells us that Eden was a place of charm:—

> "Spot more delicious than those gardens feign'd,
> Or of revived Adonis, or renown'd
> Alcinous, host of old Laertes' son,
> Or that, not mystic, where the sapient king.
> Held dalliance with his fair Egyptian spouse.

Though pushed into the background through the emphasis which was laid on the other usage, I claim that Pliny and Milton were right in using the term "Gardens of Adonis" in the sense of Garden of Love or Pleasure.

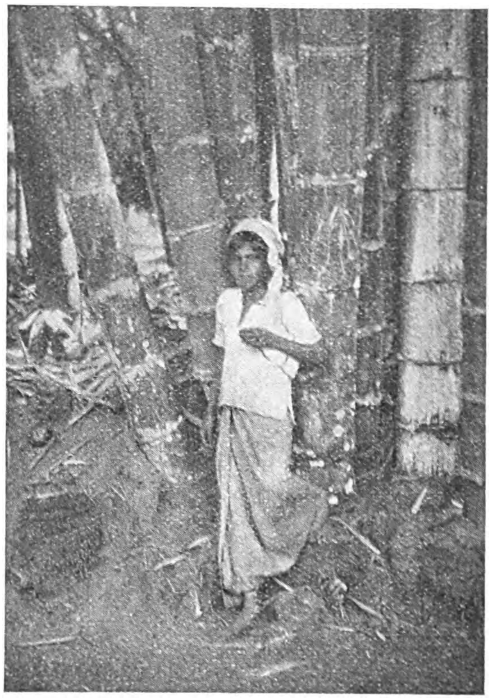


FIG. 132.—DENDROCALAMUS GIGANTEUS.

The "Giant Bamboo" in the Peradeniya Gardens, Ceylon; height, about 90 ft.; circumference of largest stems, at base, about 30 inches.

Standing recently by the Arch of Titus, in Rome, I found the entrance to "a wild and beautiful garden possessing most lovely views of the various ruins, occupying the site of the Gardens of Adonis." It was planted by Domitian, and he ought to be a better authority on the subject than those who lived nearly two thousand years later. Why may we not follow him, and devote a plot of ground to the cultivation of those plants which have been consecrated to Adonis' memory? With a marble statue of the beautiful boy in the midst, how pleasing would be the effect.

What would our garden contain? Adonis, it will be remembered, was the son of Theias and Smyrna, Cinyras and Myrrha, or some other fabulous pair, and was of such surpassing loveliness that Aphrodite or Venus became enamoured of him. He was eventually slain by a wild boar, and from his body sprang a flower. Perhaps this was the way in which in pre-logical times, men tried to account for the soul. If a flower grew up where a body was slain, was it not the dead one come to life again?

What, then, was the plant which in this instance came into existence? This question has received many answers, and if we collect all the different forms to which the legend has been attached, and add thereto such other plants as have become associated with the name of the hero, our Garden of Adonis will not be lacking in charm. We will proceed to plant:—

The Anemone.

According to some writers the one and rightful claimant to the honour of being the true Adonis flower is the large-blossomed red Anemone. To give all the variants of the legend would be to fill a volume. Thanks, however, to the recent researches of Semitic and other scholars, interesting light has in these recent days been thrown upon the subject. It used to be contended that the word Anemone came from the Greek, and it was therefore called the Wind Flower. Among the Arabs, however, we find that the red Anemone, or Poppy Anemone (A. coronaria), is named "Shakaiku'n noman," or the wounds of Noman. Noman is the Arabic equivalent of the Hebrew Naaman, which means The Pleasant One, and it is held by competent scholars that this name was applied to Adonis, just as Buddha was spoken of as The Pure One, or Jehovah was named The Holy One. Thus, Adonis was known as The Pleasant One, or perhaps better as "He who gave pleasure by his beauty and charm." When he was slain, the red Anemone sprang from his blood-drops, and so became known as the Flower or Wounds of Adonis, and the etymology of the name Anemone is now traced to Naaman or Noman. It would be wearisome to the general reader to work through all the details, but scholars who are interested will find all the critical apparatus in the newest lexicons and cyclopaedias bearing on Semitic studies and comparative religion.

It is to be noted that those who prefer other flowers to this, still link the Anemone with the Adonis legend. Thus the Greek poet Bion, in his epitaph on Adonis, makes the Anemone the offspring of the tears of Venus or Aphrodite. In any case, this flower must receive the primary place in our new Garden of Adonis.

Argemone.

The true flower of Adonis must, of course, be of a sanguineous hue—red, scarlet, purple, crimson, or the like. In an ancient codex of Dioscorides which is preserved in Vienna is to be found an illustration of the Adonis-flower as described by Ovid under the name Argemone. This is the designation of a genus of plants belonging to the Poppy Order (Papaveraceae), and if a red-flowering variety cannot be obtained, our own flora supplies us with an excellent substitute in the cornfield Poppy (P. Argemone, L.). This would recall, also, the Red Poppies of Flanders, and link up the legend of Adonis with our own more recent history. A learned German authority on the mythology of plants informs us that the Argemone or Poppy with scarlet blossoms agrees well with the flower mentioned in the Adonis tradition.

The list of plants, however, is a somewhat lengthy one, and other kinds must be reserved for another article. *Hilderic Friend.*

(To be continued.)

The Gardeners' Chronicle, February, 1926, p. 130; and January 29 and February 26, 1927.

THE GROWTH OF BAMBOOS.

The rate of growth in plant life is a subject upon which I know little or nothing, but I should imagine it attains its maximum in the more humid tropical districts. In Ceylon and Java careful records have been kept by competent observers of the vertical growth of the Giant Bamboo, Dendrocalamus giganteus. To those who are only familiar with plants in the temperate zone, the figures obtained appear to be almost incredible. At the Peradeniya Botanical Gardens, near Kandy, Ceylon, Dr. Lock found that a young shoot of this Bamboo grew 18¼ inches in twenty-four hours, during the rains of the south-west Monsoon, while Krans, of

Buitenzorg, in Java, noted 22·4 inches during the same space of time. Nearly an inch an hour! It almost reads like a Jack-and-the-Beanstalk fairy tale!

In all probability, development is equally rapid in its native countries, which are Burma and Malaya, but on this point I have no information. At Peradeniya, where the plant was introduced in 1856, I roughly estimated that the height of a fully mature stem was between eighty feet and ninety feet, while the girth near the base must have been over two feet. My thanks are due to Mr. Parsons, Curator of these gardens for the above-quoted records of growth.

It may be noted that even in England the stems of the Japanese Bamboo, Phyllostachys mitis, have, according to Bean, grown nearly a foot in twenty-four hours. In Japan the young shoots of this species are commonly eaten as a vegetable. Although rather tasteless, with a suitable sauce these form a sufficiently palatable dish, but possibly their chief merit lies in the consistency of the "flesh," which has a pleasing crunch, like that of a raw Celery root. In order to obtain large-sized shoots when the plant is cultivated as a vegetable, only one stem is allowed to mature; when grown for the sake of the canes, it is permitted to form dense clumps. *Collingwood Ingram.*

THE LATE SIR THOMAS HANBURY AND LA MORTOLA.

As one who spent twenty years at La Mortola, having the great privilege and pleasure to be Sir Thomas Hanbury's collaborator, I consider it a debt of gratitude to his memory to recall to the readers of *The Gardeners' Chronicle* that March 9 was the twentieth anniversary of his death, and that on May 2, 1927, it will be sixty years since he purchased La Mortola. In 1867, after a life of strenuous work in China Sir Thomas Hanbury came as a winter visitor to the Riviera, and decided to carry out the dream of his early youth to create a botanical garden somewhere on the Mediterranean and to share its pleasures and botanical interests with his brother Daniel, the famous pharmacologist.

When he became acquainted with the little Cape of La Mortola, the beauty of which made a striking impression upon him when he first approached it by sea, he decided to purchase the place. At that time it was little more than an abandoned countryside, with scanty vegetation, poor vineyards, and Olive groves surrounding an old Palazzo of the Renaissance period, but almost a ruin.

There have been created other fine gardens along the Riviera, some before and many afterwards, but none can rival La Mortola. It is not only the unique natural beauty of the place, but the way the brothers Thomas and Daniel Hanbury undertook the work that strikes those who visit the gardens. It was their ideals, their perseverance and skill, that built up the garden and directed its progress. Both possessed a wonderful gift for preserving and increasing the natural beauties of the spot and a desire and capability to collect and to grow the innumerable treasures of plants that soon began to fill and to enliven the place, and which since have made it the Mecca of all plant-lovers.

I need not repeat the early history of this famous garden. It has often been told in *The Gardeners' Chronicle*, and the late Lady Hanbury has left a most charming account of it in her *Letters of Thomas Hanbury*, a book I wish to recommend to everybody who has been at La Mortola. Also in the *Hortus Mortolensis*, published in 1912, a short history of the garden and some account of the plants are given. Besides, many excellent descriptions of the garden were given by enthusiastic visitors, among them perhaps the best by the late Professor Flückiger, and by E. Strasburger in his *Rambles on the Riviera.*

In addition to the services rendered to botany and horticulture by his own garden, Sir Thomas Hanbury founded, in 1892, the Institute Botanico Hanbury of the University of Genoa, where his friend Dr. O. Penzig has worked since as Professor of Botany; and the Royal Horticultural Society owes to his generosity the gift of Wisley Gardens.

Sixty years is a long time, not only in human life but also in a garden. Many a small tree that hardly showed anything of its real character has had time to grow into an imposing specimen at La Mortola. Many changes came and were necessary and prove also that a garden is something living, that has its youth and its age and changing periods. Moreover, the history or biography of a garden can be as attractive as that of man. For about forty years Sir Thomas Hanbury enjoyed his garden. During that time he lived up to his ideal, *i.e.*, that to promulgate the love for plants and to distribute seeds and plants, was his mission in life. How much he and long after him, his garden, have contributed towards this aim is difficult to tell, but it can hardly be over-estimated. A wealth of wonderful plants that now adorn the gardens along the Mediterranean and in other similar climates the world over owe their introduction to La Mortola.

It was a noble pursuit to create and maintain this garden. It is to be hoped that many future generations will enjoy it and benefit by it, and that the ashes of the founder of this unique garden may quietly rest under the shadows of the century-old, tall, Mourning Cypress trees of La Mortola. *Alwin Berger.*

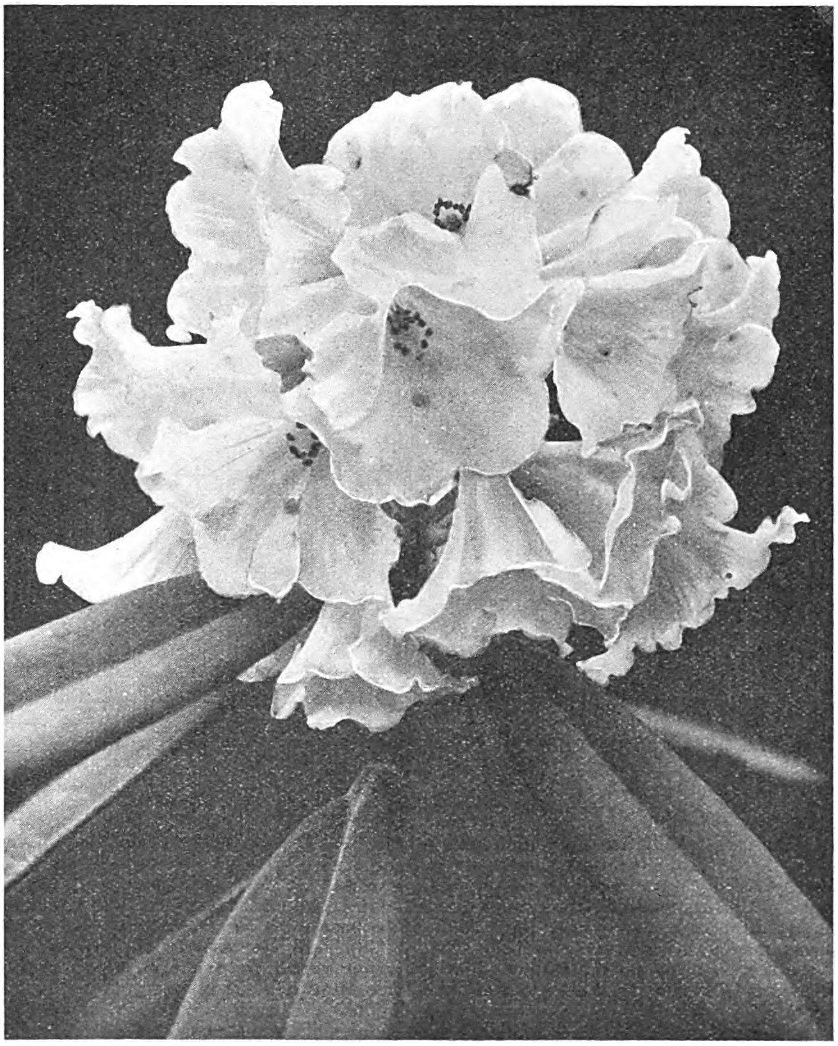


FIG.—133.—RHODODENDRON ARGYROPHYLLUM.

(see p. 264.)

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

THE note on page 225 from *The Gardeners' Chronicle* of 1852 is of much interest at the present time, when the genus Rhododendron has won such importance in decorative planting. British springtide must ever remain as Mr. Masters (father of the late Dr. Maxwell Tylden Masters) found it seventy-five years ago—a season of anxiety for Rhododendron enthusiasts.

The present spring bears an ominous resemblance to that of 1926 when, in this district at least, the mildness of March and April were the prelude to 7° of frost on May 15. Never before have I known the young growth on R. barbatum to be frosted, for that species is prudently late in starting. Shoots six inches long were killed on a seven-foot bush of R. pachytrichum; yet, strange to say, that bush flowered generously in March of the present year. Further mischief was wrought by an unusually sharp frost in the closing days of October; but on the whole, the damage from unfavourable weather has proved less serious than might have been expected.

While R. arboreum and R. campanulatum are sparsely furnished with bloom this year, the soft splendour of R. Fargesi and R. oreodoxa has been very gratifying, and we are looking forward to a specially lavish display on R. decorum.

Among the species that flowered here for the first time last year, two are worth noting as very desirable. R. cyclium, discovered by Forrest in 1919, resembles its near relative R. Souliei in stature, foliage and flower, with this important difference, that, whereas the carmine buds of R. Souliei open to flowers of a wan white, the blossoms of R. cyclium remain delicate rose till they fade. The other is R. desquamatum, introduced by Forrest in 1817. It is of the Heliolepis series, and when it approaches the height of twenty to twenty-five feet, as reported, it should be a beautiful object if well set with its white and mauve, purple-spotted flowers.

Not many flowers last so well as Rhododendrons when cut and brought into the house, provided they are kept in a cool place. Three weeks and two days ago I placed a couple of trusses of R. sutchuenense in the porch, and to-day they are still untarnished. The flowers of this species are pale rose, with crimson markings.

Chance contrasts and harmonies of colour are worth noting. Narcissus Johnstonii Queen of Spain, a natural hybrid from the mountains of Portugal, never shows to better advantage than when springing from a carpet of purple Aubrietia, and N. Bulbocodium citrinus chimes agreeably with the pale mauve Aubrietia deltoidea var. graeca. We have never been able to keep here the rich yellow N. Bulbocodium, which, I suppose, is the type; but the sulphur-yellow N. citrinus thrives vigorously and increases self-sown.

One does not often see the Snow-flake—Leucojum vernum—naturalised in woodland, where it can be established as easily as the Snowdrop. It ripens plenty of seeds and spreads fast; but it should not be planted among Snowdrops, for their flowering seasons overlap, and the pallor of the Snowdrop suffers in competition with the more opaque white of the Snowflake.

It would be interesting to hear whether any of your readers have experience of a dark grey aphis or chermes attacking the foliage of Viburnum Carlesii. I noticed it first in an Irish garden last year. On returning home, I found that a bush here, about five feet high, which had flowered very freely in April, had been completely defoliated by swarms of this pest. A second crop of leaves developed in summer; the aphides did not reappear, but that bush has not a single flower on it this year, which is not surprising, seeing the severe check the plant sustained in the loss of its foliage in 1926. Our other bushes were not attacked. *Herbert Maxwell, Monreith.*

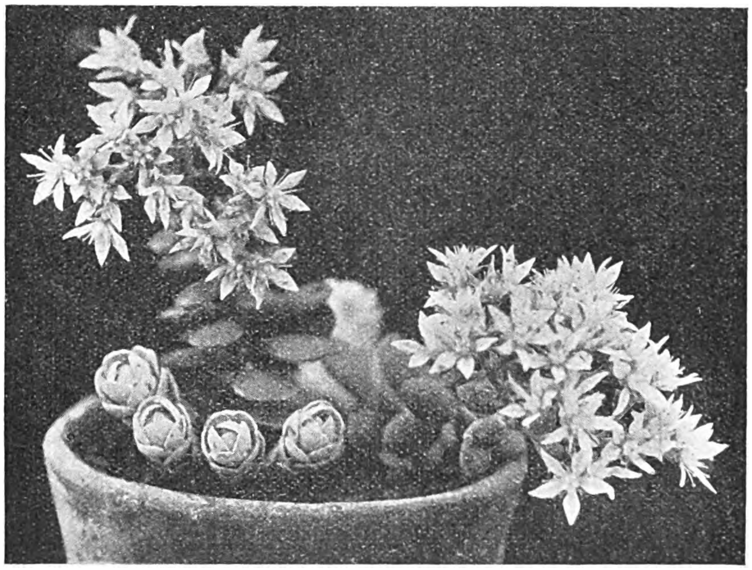


FIG. 134.—SEDUM BELLUM IN THE GLASNEVIN BOTANIC GARDENS.

NOTES FROM GLASNEVIN.

March was a stormy, wet month, redeemed only towards the end by occasional sunny days with rather less wind. There was, however, no lack of interest in the garden, and especially in many of the bulbous plants that followed the Snowdrops and Crocuses of February and early March.

The early Squills, Scilla bifolia and S. sibirica, have been very beautiful for several weeks and particularly good is the form of S. sibirica called ucranica, of uncertain origin. The flowers are more numerous on each stem and are of a deeper and more intense shade of blue; grouped in the rock garden, massed under shrubs, or furnishing the front of a border, these early blue flowers are delightful. There are white and pink varieties of S. sibirica, but they lack the charm of the typical blue colour. Of equal value are the Chionodoxas of which there are several species and many varieties. C. Luciliae is the so-called Glory of the Snow and needs no encomiums; the variety gigantea has larger flowers, rather paler in colour, but still invaluable for massing under shrubs and about the rock garden. C. L. Tmoli and C. L. Boissieri are good and distinct, as also is C. L. sardensis, but the best of all for effect is C. Siehei (*Bot. Mag.* 9068), and it is usually the earliest here. The flower stems are tall and stout, bearing many flowers of deep blue.

Tulipa Kaufmanniana is assuredly one of the best species as it is the earliest. It is variable in colour, ranging from creamy white to rich red in the variety coccinea. A very fine unnamed form from Turkestan is deep carmine on the outside of the segments. The variety intermedia is the most distinctly yellow of all the forms, and has the brown, mottled leaves of T. Greigii. T. Eichleri, a robust species, is now flaunting its large, bright red flowers, and is very conspicuous in the rockery from a long distance. It will be followed soon by the even more striking T. Fosteri. T. pulchella is a dwarfer species with globular flowers of a pink shade; it loves a sunny, well-drained pocket in the rock garden, where, indeed, all the Tulip species flourish. The smaller species seem to like a gritty soil, for T. stellata has lived happily for many years in a gritty moraine and never fails to flower freely.

In the same moraine, Fritillaria armena is flowering, the nodding, bright yellow flowers at once attracting the lover of plants although the total height of the plant in flower is only some four inches to five inches. Another satisfactory plant in the moraine is Narcissus Bulbocodium, which I have alluded to in former notes. This year the colony is better than ever, and Narcissus moschatus, with nodding, white flowers, also loves a gritty soil in a sunny position, and is now in flower. N. minor, N. minimus, N. triandrus and N. cyclamineus have all flowered recently in the rock garden, and in their dainty beauty are in marked contrast to the masses of large-flowered garden varieties now flowering in thousands in the grass and the hundreds of named varieties of all sections now on view in a long border set apart for this purpose.

Other prominent plants in the rock garden at present are the hybrids of Primula Juliae, including P. Jewel, P. Juliana, P. Wanda, and P. Purple Splendour, the last, in my opinion, the best of all; the plants are at the moment literally one mass of flower. Primula rosea, by the pond and river, is just coming into full bloom, and a colony of P. denticulata, with its roots in the water, looks remarkably happy. Other species and varieties of Primula in flower are P. Palinuri, P. ciliata, P. marginata and its variety or hybrid Linda Pope.

Visitors show great interest in several fine groups of Viola gracilis which are now full of flower, the dark, purple-blue blooms, each with a white "eye," proving a great attraction. Many clumps of the Pasque Flower, Anemone Pulsatilla, are in bloom, and show great variation. In some, the flowers are pale with pointed sepals and borne on tall stalks, while in others the colour is deeper, the sepals blunter and the stalks scarcely exceeding the fast developing leaves. Interesting, too, is the "Shaggy Windflower," Anemone vernalis, whose opalescent flowers, furnished with long, soft hairs, are now open. Clumps of Anemone Hepatica lend colour to the rock garden, which is rapidly coming into its own again, helped immensely by the dwarf Rhododendrons, which we owe to the indefatigable efforts of several intrepid collectors. Noteworthy at present are dwarf, twiggy forms of R. racemosum, R. hippophaeoides covered with blue flowers, R. telmateium, R. mollicomum, pink, and R. flavidum, yellow. The next few weeks, given reasonable weather, will see a large accession to the number of Rhododendrons in bloom.

Notable among shrubby plants now in bloom are Clematis Armandii and C. A. Appleblossom, the former white and the latter with pink-tinted flowers; both succeed best here on a wall facing north. Forsythias bloomed profusely, the best being F. intermedia spectabilis, with deep yellow flowers, and Wilson's F. suspensa atrocaulis, with dark shoots and large, clear-yellow flowers. These are being quickly followed by the Prunuses, of which many will flower during April. At present, P. tomentosa endotricha is in full bloom, somewhat in advance of the type, which, as grown here, as a much finer plant. I am of the opinion, however, that P. tomentosa varies in quality of flower when raised from seeds, and only the finest forms should be propagated from cuttings or layers. P. subhirtella is in full flower, and the beautiful forms of P. serrulata will in all probability be just right for Easter. Others now in flower are P. Amygdalus macrocarpa, P. consociiflora, P. triflora and P. Sargentii.

Indoor Plants.

Among the more striking of the plants flowering under glass, mention may be made of a fine group of Hippeastrums, of which a large number was bequeathed to the Gardens by the late Lt.-Col. Sir George Holford. His collection was generally admitted to be the finest extant, and the large, richly-coloured flowers are a source of great interest and pleasure to visitors.

Sedum bellum (Fig. 131) is a dainty Mexican species well-adapted to the cool greenhouse or alpine house. The shoots of the current year are thickly clothed with mealy leaves, and those of the previous year are bearing large corymbs of pure white flowers; after flowering the shoots die.

Aotus gracillima, once a well-known greenhouse plant, is now seldom seen in private gardens, yet all it requires is greenhouse treatment. The shoots of last year are now wreathed in small, Pea-shaped, yellow flowers. After flowering, the shoots should be shortened and the plant watered carefully until the new shoots are growing freely.

Agapetes buxifolia, somewhat sparse of foliage, is striking, however, with its numerous, bright red, tubular flowers over an inch long. This, too, is one of the older "hard-wooded" plants requiring careful cultivation.

Prostanthera nivea, an Australian shrub with narrow leaves, bears beautiful pure white flowers and is not difficult to cultivate. Quite small plants flower freely, suggesting that it would make a useful subject where groups of flowering plants are required for furnishing a conservatory. Like other early-flowering shrubs, outdoor as well as indoor, it pays to shorten the shoots when the flowers are over.

Tacsonia mixta is an excellent climber for a warm greenhouse. It is now bearing its long-tubed flowers, with petals of a good shade of pink. Of rampant habit of growth, considerable roof space is required to do the Tacsonias justice, but a periodical thinning of the shoots after flowering serves to keep the plant within reasonable limits.

Aristolochia gigas, from Guatemala, is remarkable for the size of its flowers. Although smaller than the variety Sturtevantii, they are nevertheless, sufficiently large to arouse interest which is, however, somewhat tempered by their vile odour. The spreading part of the corolla is heart-shaped and extended into a long tail, the total length exceeding two feet. The colour is cream, with deep purple blotches merging into a deep purple throat. *J. W. Besant, Glasnevin.*

THE BOTANIC GARDENS, GEORGETOWN.

The Botanic Gardens of Georgetown, British Guiana, situated at Vlissingen, at the back of the town, are about 150 acres in extent, exceedingly well-kept and contain many beautiful examples of the indigenous flora, and also a very large number of introduced Palms, trees, shrubs and climbers.

In the north wall of the lodge entrance is a clock, placed there in 1909, with a brass tablet to commemorate Mr. George Samuel Jenman, Government Botanist and Superintendent of the Garden from 1879 to 1902, "to whose knowledge, skill and work the Colony is indebted for the laying out of the garden and the formation of the Herbarium."

Near this entrance is a series of beds and borders largely furnished with such well-known plants as Cannas, Celosias, Coleus, Codiaeums, Acalyphas, Cosmos, Gaillardias, Hibiscus, Plumbagos, Salvias, Sunflowers, Lantanas and Begonias, all so luxuriant in growth and profusely flowered as to excite the envy of those who grow these same subjects at home under less favourable conditions. Close by is a meteorological station where accurate and comprehensive meteorological records are kept and sent to various stations throughout the world. The garden is enclosed on this side by an exceedingly fine hedge of the Barbados Cherry (Malpighia glabra), which forms a dense, impenetrable barrier, and is covered, at certain seasons of the year, with a multitude of small, Cherry-like berries.

A broad drive, about a mile in extent, runs through the Gardens. On either side are spacious, open lawns, rich with the green of the Bahamas grass, and studded with fine specimens or well-balanced groups of a large variety of tropical plants. Euterpe Jenmanii is of giant dimensions; it has a clean, shining trunk of nearly 100 feet, and is surmounted with a massive crown of luxuriant leaves. Near here also is a very fine specimen of the Brazilian Royal Palm (Attalea Cohune). Amongst the largest native trees, the Cannon-ball tree (Couroupita guianensis) is the most striking, with its peculiar, sweetly-scented flower and large, brown, cannon-ball-like fruits hanging on the naked branches well up the stem. Other notable native trees are represented by fine examples of the Crabwood (Carapa guianensis), the Balata (Mimusops globosa), the Mora (Dimorphandra Mora), the Trysil (Pentaclethra filamentosa), the Silk Cotton (Bombax Ceiba), the Sandbox (Hura crepitans), the Hog Plum (Spondias lutea), the Long John (Triplaris surinamensis), the Wakenham Lilac (Jacaranda ovalifolia), the Wild Cacao (Pachira aquatica and P. insignis), Ficus leucosticta and Cedrela sp.

Indigenous Palms are well represented by Astrocaryum tucuma, A. tucumoides, Bactris Maraja and B. flavispina, while fine clumps of Manicole Palms, Euterpe edulis and E. stenophylla are to be seen along the upper portion of the central drive, together with magnificent specimens of Maximiliana regia.

Starting at right-angles from the central drive are two serpentine drives bounded with avenues of huge clumps of Chrysalidocarpus lutescens and, continuing in this direction under very fine specimens of Pithecolobium Saman, one reaches the Ficus grove containing twenty-five species of Ficus, including F. laevigata, F. religiosa, F. indica, F. Vögelii, F. maculata and F. Hookeri.

Several canals, about twelve or fifteen feet wide, run alongside the drives, the surface of the water being thickly covered with Victoria regia and Nelumbium speciosum. Long stretches of these canals are given over to the Nelumbiums, which throw their giant Tulip-like flowers well above the foliage. So plentiful are the flowers that they are gathered by hundreds every morning when in bud, and sold at the local market at four shillings per hundred! The beautiful Victoria regia, which is to be seen in many situations, attracts attention by reason of its huge, saucer-like leaves, and large, handsome, white to pinkish flowers.

Around the lakes are fine specimens of the giant Aroids (Montrichardia arborescens and M. aculeata), the Swamp Fern (Acrosticum aureum), the beautiful water Hyacinths (Eichornea coerulea and E. azurea), and the Water Lettuce (Pistia Stratiotes), while in the lakes Utricularia, Nymphaeas and Salvinia auriculata abound.

In the nursery house a fine collection of Ferns is grown, including many species of Adiantums, Gymnogrammas, Nephrolepis, Platyceriums and Polypodiums, while in the so-called Calabash Walk, growing naturally on the trees and shrubs, is a large collection of Orchids, including Cattleyas, Dendrobiums, Epidendrums, Oncidiums and Vandas.

This by no means exhausts the interesting plants or the attractive features of the Gardens. There are no fewer than eighty-five species of tropical Palms, fifty species of Codiaeum, and probably as many of Hibiscus in a wide range of colours. Agaves, Ardisias, Azalias, Bambusas, Bauhinias, Caesalpinias, Clerodendrons, Cycas, Diospyros, Dictyospermums, Eranthemums, Cereus, Euphorbias, Eugenias, Gleditschias, Ixoras, Jacobinias, Lagerstroemias, Monsteras, Neriums, Petreas, Poincianas, Ravenalas, Sterculias, Tabernaemontanas, Swietenias and Psidiums abound, and a most attractive feature is the way in which many of the larger trees and shrubs are draped with such climbing plants as Antigonon leptopus, Aristolochia elegans, Allamanda cathartica, Bougainvilleas in variety, Bignonia radicans, Dipladenias in variety, Hoya carnosa, Stephanotis floribunda and Thunbergias in variety.

Under many of the larger Palms and trees and in the woodland glades the ground is carpeted with the Demerara Primrose (Asystasia bella), which throws up its delicate flowers in rich profusion.

Adjoining the Gardens are the nursery and trial fields, some forty acres in extent, under the able direction of Dr. Whittles. Here experiments with many plants of economic value, and especially seedling Sugar canes, are carried out. Formerly new varieties of cane were only obtained by chance variation, now the minutely divided "arrow" or inflorescence of a full-sized cane is laid on the top of rich soil in a wooden tray, the soil having been previously baked to kill all weed seeds. The fertilised seeds germinate in the ordinary way, and when the seedlings are about an inch high, the tiny grass-like plants are transplanted into baskets and eventually bedded out in the experimental grounds. Throughout its whole career, each cane selected for further test is known by a number, prefixed by a letter, indicating the colony of origin. Thus "D" stands for Demerara, so that when a variety gives evidence of exceptional usefulness its history may be traced easily. *W. Auton.*

USES OF ARTIFICIAL MANURE.

Under most conditions it is good garden practice to use artificial manures in such a form as to add to the soil supplies of nitrogen, phosphate and potash; when artificial manures do this they are known as complete artificial manures. It is generally accepted that a complete artificial manure gives an increased yield, provided that the soil which is growing the crop has a fair reserve of organic matter, but that the results are not so sure if the organic content of the soil is low. I do not propose to discuss the question of complete artificial manures further, but rather to discuss the use of artificial manures containing only one kind of plant food for certain definite objects.

Nitrate of soda, or sulphate of ammonia, has for many years been used by gardeners as an aid to fight certain insect pests; for example, Turnip Flea Beetle (Phyllotreta nemorum, Linn.). In certain seasons this and allied species are troublesome on germinating Brassicas, and it does most damage in a period when the growth of the seedlings is slow. Under slow conditions of growth the effect of flea beetle attack is that the pest eats the foliage faster than the plants can produce it, with the consequence that the seedlings die, and the grower has to sow again. If an attack of flea beetle be taken in time and a dressing of either of the above-mentioned nitrogenous manures given at once, the seedlings grow faster and are then in the position of being able to produce more foliage than the beetles can eat. A crop in this position can generally pull through.

Another example of these manures being useful as an aid to good crops is in the case of a crop standing still in the spring. Weather in spring is varied in character, and often plants start off well and then stand still; in other words, the crop receives a check. This does not appear to injure some crops. Others suffer badly later in the season by running to seed instead of developing their normal growths. Turnips and Beets are very prone to this habit. A dressing of nitrate of soda will often help development in one of these periods of check. Again, all early crops are benefited by a very light dressing of nitrate of soda. The formation of nitrate is very slow early in spring, and crops often grow much better if nitrate is supplied to them. If the crop has to wait until the soil warms up sufficiently for bacterial action to start, growth is slow, because nitrate formation is dependent upon bacterial action. Even early Peas, which normally can look after themselves from a nitrogenous standpoint, benefit by a small dressing of nitrate of soda very early in spring. Other examples could be given, but more than enough have been given above to indicate that there are special uses to which quick-acting nitrogenous manures can be applied, especially when growth is desired.

To take the phosphatic manures next seems a natural sequel to the above because they are so useful in promoting early maturity. In cold, late districts, the application of superphosphate has a marked effect upon the ripening of a crop. A good example is the Onion crop in the northern parts of Britain. It does not take a lot of skill to grow a crop of Onions in those districts, but the finishing of the crop often tries the skill of the cultivator to the uttermost. The cultivator is helped by at least a week if he uses superphosphate during the growing season.

Again, the use of the same manure is a great aid to root-action in the early spring, and if a very light dressing be given the root-system of a plant will double in a very short period. It pays to apply superphosphate ten days before nitrogenous manures are given because, with a bigger root-system, the plant is better able to use the nitrogen when it is applied. I am inclined to think that for this purpose half-an-ounce per square yard of land gives quite as good a result as three ounces. Half-an-ounce per square yard can, of course, be easily spread if mixed with a carrier first. When only organic manures are used in a garden the crops sometimes suffer from lack of phosphate, and if a dressing of any phosphatic manure be given the crops are much improved.

The value of artificial manures containing potash is not so easy to demonstrate as in the case of nitrogen and phosphorus. Perhaps the best example of a special use to which potash can be put is in the case of stripe disease of Tomato (Bacillus lathyri, Manns and Taub.). Bennett states :* "An outbreak of this disease may be controlled and frequently eradicated if the plants be young, by altering the conditions of heat and damping so as to favour more hardy plant growth, and by using sulphate of potash for top-dressing at one ounce per square yard, or watering with a solution of 1 lb in 100 gallons."

Sulphate of potash is often used to correct the over use of nitrogenous manures and to help overfed plants to ward off fungous attacks. In other cases potash is used to delay maturity ; this is especially useful in districts having a light rainfall. In such districts owing to the poor water supply, premature ripening is often troublesome. Under such conditions a dressing of potash salt causes the growth of the crop to be prolonged, and an increased crop is the result.

It would appear that certain artificial manures are useful when, under certain conditions, a definite object, apart from the actual feeding of the crop, is in view. Gardeners should remember that quick-acting nitrogenous manures are useful when early or quick growth is desired. They should sharply distinguish the difference between early growth and early maturity because the two are entirely different, and while nitrates favour the former, phosphates aid the latter. Potash delays maturity and is also a great aid in fighting fungous and bacterial plant diseases. *Somerset.*

ECONOMIC PLANTS OF THE BAY ISLANDS (HONDURAS).

(*Continued from p.* 181).

Miscellaneous Economic Plants.

The tree locally known as Almond Tree or Almendro (Terminalia Catappa) is of East Indian origin, and not at all related to the true Almond (Amygdalus), but its fruit is similar in shape and texture. It reaches a height of fifty to sixty-five feet (15-20m.), and is commonly cultivated as a shade and ornament tree. It is not sensitive to the sea breezes. The large leaves are oval, shiny and dark green in colour. The oily, edible kernel is enclosed in a hard, fibrous shell, which is surrounded by a red pulp, commonly eaten by children.

The Cedar or Cedro (Cedrela odorata) is the tree known in commerce under the names of Spanish Cedar, West India Cedar, Jamaica Cedar or Honduras Cedar. It belongs to the family of the Meliaceae, and is a close relation of the Mahogany. It is entirely different from the true Cedar of Lebanon, which is a Coniferous tree, but its wood is thought to resemble that of true Cedar in colour and general appearance. This tree has a straight trunk and reaches a height of sixty feet to one hundred feet (18 to 30m.) ; it has compound leaves with leaflets set in two rows, like Acacia and Logwood. The wood is soft, light, porous and durable, but it splits easily ; locally, it is made into dug-outs and furniture. The wood has a reddish or brown colour, and it has a very pleasant strong scent, which protects it from the attacks of insects.

This Cedar tree is found in none of the Bay Islands except Ruatan, and even there it does not occur in abundance. No wood is exported, but, from the mainland, Cedar logs are shipped with Mahogany to the United States where they are manufactured into furniture, moth-proof chests, cigar boxes, pencils, etc. From the bark of the tree a decoction is made which is said to be used to produce abortion. On the mainland of Honduras grows also a lighter variety of Cedar, of a more whitish colour, which is not found in the Bay Islands.

Several species of Oaks (Quercus sp.) are found which differ in the size of the leaves. In Spanish, the small-leaved varieties are called Encino, and the others Roble. These trees are particularly numerous in the savanna-like districts of Bonacca and Ruatan ; they do not reach a great size, and the wood is of little use.

The tree known among English- and Spanish-speaking natives by the name Santa Maria, is very common on all the islands. It reaches a great size, and is the only native lumber used to a great extent in ship-building. It is also used for making dug-outs ; it is more durable than either Mahogany or Cedar, but it has the disadvantage of being also heavier. Except for the different leaves, and the fact that it has no spurs whatsoever, the Santa Maria might easily be taken for Mahogany.

A tree known as Lignum Vitae is said to grow on the hill sides of Ruatan, but no specimen has ever been observed by the writer. In Central America and in the West Indies the name Lignum Vitae is applied to different trees having very hard, durable wood.

The Buttonwood is a small, gnarled tree, with lance-shaped leaves, which is occasionally met with along the sea shore. Its hard, durable wood is sometimes used for house posts.

The Long-leaf or Pitch Pine (Pinus tenuifolia, Benth.) known in Central America by the Mexican name of Ocote, is found over the larger part of Bonacca and around Port Royal (Ruatan). On account of its abundance on Bonacca, Columbus named this island the Isla de Pinos (Pine Island), which name, however, soon afterward passed into oblivion.

The Pine trees are not found at an altitude under 100 feet (30m.) above sea level. They do not grow closely together, and the Pine-ridges often present the appearance of a well-arranged park. The wood is suitable for building purposes, but the islanders claim that it is more advantageous to import Pitch Pine lumber from the United States, as there is no saw-mill in the islands. The larger trees are occasionally used as schooner masts, while the poorer negroes and Caribs use the wood for kindling fires and for illuminating. No use is made of the resin with which the wood is saturated.

The Gumbolimbo, Jiñicuite, or Indio Desnudo (Bursera gummifera, syn. Bursera Simaruba) is a high tree, the branches of which begin to form at a comparatively long distance from the ground. The red bark is very thin and smooth ; no epiphytes manage to grow on it, as it is continually peeling off in shreds and sheets like the European Birch. For this reason the tree is called Birch, in parts of the British West Indies. It grows readily from cuttings and therefore is sometimes planted for fences.

The Gumbolimbo sheds its pinnate leaves at the beginning of the year, and then remains for one or two months entirely destitute of foliage ; the new leaves begin to appear in April. The wood is soft and white and of no value. On the mainland, the gum from the bark is used as incense on account of its pleasant fragrance. A decoction from the bark is taken as a beverage, and is said to render efficient service in the treatment of skin diseases and other sicknesses ; the blossoms may also be used for the same purpose. *Edouard Conzemius*, 33, *Boulevard des Batignolles, Paris.*

(*To be continued*).

PUBLIC PARKS AND GARDENS.

Dunstable Town Council has been notified by the Ministry of Health that it will hold an enquiry into its application for sanction to a loan for the purchase of land off High Street North for a recreation ground.

Ealing Town Council has received sanction to borrow £20,298 for the purchase of land for permanent allotments and a recreation ground at Northfields.

Stoke-on-Trent Corporation has been recommended to accept the offer of the Mossfield Colliery Co., Ltd., to let on a lease of seven years about four-and-a-half acres of land at Longton for a recreation ground.

Brighton Town Council is recommended to make application to borrow £2,200 for laying-out a portion of Patcham Place estate as a recreation ground.

NOTICES OF BOOKS.

Carnations for Amateurs.*

As all who are acquainted with Mr. J. L. Gibson and his work amongst Carnations would expect, a book written by him on his favourite flower would treat largely of the Border varieties ; nor would they be disappointed in the work under notice. But, while this is so, the Perpetual-flowering and the Malmaison Carnations are by no means neglected, for the author has enlisted the services of Mr. Laurence J. Cook, with the result that all the types of Dianthus are treated by experts who write from their own experience.

While most space is rightly devoted to the two above-mentioned types of Carnation, there are useful descriptions of the most desirable of the Dianthus species and hybrids. These are grouped into "Rock Garden Alpine Pinks," and "Border Alpine Pinks." In the very interesting chapter on the garden Pink, full credit is given to Messrs. Allwood Bros., Mr. Douglas and Mr. Herbert for the valuable work they have done in raising beautiful varieties of garden Pinks.

In the portion devoted to what may be termed the Carnation proper, Mr. Gibson advises the amateur to "try his fortune with seedlings of his own raising," and proceeds to offer valuable advice on this interesting phase of gardening. But he, very properly, warns the would-be hybridist that lucky-dips into the welter of seedlings are few and far between, and writes, "A few years ago, one of the best Carnation growers living put down 13,000 seedlings from the highest grade of seed. About ninety of the resulting plants were deemed so good that they were marked to try again. At the end of the second year one Carnation was named, and eventually put on the market, one out of 13,000." Such a statement coming from an authority might well give the amateur pause, but should not dishearten him, because as Mr. Gibson points out, it was an extreme case ; his own estimate is that one seedling per thousand is worth naming. But the would-be amateur hybridist should bear in mind that the standard set by Mr. Gibson and most other experts is exceedingly high. A seedling to satisfy them must be superior to all others of its type. If the amateur raises seedlings for his own pleasure and without expectations of producing a First-class Certificate variety he should derive great enjoyment in the process, and obtain some seedlings of sufficient merit for his own purposes.

The book is well printed, and the many illustrations tell their story admirably.

FRUIT GARDEN.

FRUIT PROSPECTS.

On all sides there are complaints of the lateness of the season, and what is more to be regretted, the unfavourable weather and the bad state of the ground have caused all garden operations to be delayed. A mild winter following a wet autumn led fruit growers to fear very early development and expansion of fruit buds, but a cold February has effectually prevented precocious flowering, which might have been unfortunate for the fruit grower. Apricots seem to have suffered through the unusual length rather than the severity of the winter. The next thinnest crop appears to be Pears, which promise to give something like half the average yield, yet a moderate crop is sometimes better than a full one, because the fruits grow to greater size, and in this respect make compensation for lack of numbers.

So far as one is able to judge, the outlook generally for other fruits is very encouraging, and this is rendered more probable because the majority of hardy fruits, especially Apples, were failures in 1926. To particularise the principal fruits, Peaches, Nectarines, Plums and Cherries all look very promising, whilst Apples

---

**Fungi and Plant Diseases*, by F. T. Bennett, B.Sc., p. 231.

* *Carnations for Amateurs*, by J. L. Gibson. Published by W. H. and L. Collingridge, London. Price 5s. net.

are all that could be desired, and given favourable weather, are likely to furnish heavy crops. Owing to the lateness of wall trees in flowering protection this year seemed almost unnecessary; it is, however best to be on the safe side and cover the trees with a double thickness of netting fastened clear of the wall. This will effectually keep out frost and break the force of cold winds, while at the same time, plenty of air and light will reach the trees. An additional point in favour of netting is that, where labour is scarce, it may remain on the trees night and day until the danger from frost is over. It is too early to estimate the crops of bush fruits, but I think the outlook is promising. Raspberries promise well in length and strength of canes, while Currants and Gooseberries look like giving good yields of fruits. Strawberries vary much in appearance, some plants having suffered much, others but little. The younger plantations, as was the case last season, have wintered best, and with genial weather we may have something like an average yield of these fruits. *F. Jordan.*

FRUIT REGISTER.

APPLE WEALTHY.

This very handsome Apple of American origin is well worth planting; the tree is fertile and of clean, compact growth, making a good bush for garden culture.

The fruits are in season from October to November; they are of medium size, round, of very even outline, and striped crimson on a yellow ground. In sunny seasons, they are amongst the most handsome of Apples; the flesh is soft, juicy and of good flavour. The tree, if not a heavy, is a regular cropper.

This variety was raised in America, and has been known since about 1860; it should prove very useful as an early exhibition variety, the fruits being of excellent form and finely coloured. *Ralph E. Arnold.*

VEGETABLE GARDEN.

SOME UNCOMMON VEGETABLES WORTH GROWING.

Some of the rarer vegetables are held in high esteem by owners of gardens, and in some establishments the employer is pleased and gratified when his gardener supplies him with some novelty of which he has never partaken before, or perhaps has never even heard of.

In the vegetables referred to below many are worth growing for their culinary value, apart from their being novelties. As to the real utility of others, the delicacy of flavour or rarity of the subject may appeal to many, but they may not find favour with those who have to prepare them for the table. In this latter connection the first crop referred to, the Chinese Artichoke, may be taken as an example. The tubers are small and require very careful peeling and cooking.

Brief cultural details only are included, and only those vegetables, the seeds or sets of which may be procured without difficulty, are touched upon.

Stachys tuberifera, the Chinese or Japanese Artichoke, is a delicious little vegetable which may be boiled, steamed or roasted, and served dry or with melted butter; as a delicacy it may be fried with salad oil. The tubers should be planted about the end of March or the first week in April, nine inches apart, and from four inches to six inches deep (according to their size), in rows made eighteen inches asunder. The crop will grow in ordinary soil that has been dug deeply. No earthing-up is required. Choose a sunny situation for this crop. Lift the tubers in autumn and store them in sand.

Asparagus-Broccoli (Brassica oleracea botrytis asparagoides) is none other than selected shoots of either white or Purple Sprouting Broccoli, prepared in a special way. The flower heads are merely cut off, and the tender, Asparagus-like shoots cooked and served separately with melted butter, in much the same way as Asparagus proper. The flower-heads need not be wasted, but may be cooked separately, or used for making vegetable stews or soup. In this case it is hardly necessary for me to give cultural details beyond stating that seeds of both kinds of Sprouting Broccoli are sown in the open in May to provide heads for use during the following winter.

The Brocco-Cauliflower (Brassica oleracea botrytis cauliflora) is a cross between the Broccoli and Cauliflower, first introduced, I believe, and largely grown in Cornwall. Sown in the open in April, it will turn in ready for consumption during the following autumn, just as Cauliflowers are finishing in September and Broccoli are commencing. If sown in the open in September it will be ready for use during the following April and May, when Broccoli are finishing and Cauliflowers barely ready to take their place. The cultural details are the same as those for Broccoli or Cauliflowers. It is a decidedly useful vegetable in any garden. The seeds are only procurable so far as I am aware, from Cornwall.

The stalks of the inner leaves of the Cardoon (Cynara Cardunculus), together with the main root of the plant, make a delicate dish when boiled and served with white sauce. The stalks of the inner leaves, likewise, after blanching, become crisp and tender, and may be used like Celery in stews, soups, and salads. The seeds should be sown in specially prepared trenches about the third week in April, one inch deep and eighteen inches apart, in patches of three or four together. When the seedlings are three inches high, thin them to one to a patch. Place a stake to each plant when it is a foot high and secure the leaves loosely to it. In August draw the leaves tightly together, protect the plant with hay or straw, and cover it with soil. About eight weeks later the plants will be found sufficiently blanched for use as above described. Plants may also be raised from seeds sown out-of-doors in May and June, as successional crops, to be earthed up in September for consumption during November and December. Whole plants are thus available for boiling, without blanching and when stripped of their leaves, from August to September only, but blanched stalks and edible roots (cooked separately like Carrots) are available up to the end of December.

The leaves of the Chinese Mustard (Brassica nigra, syn. Sinapis nigra) are boiled, eaten like Spinach, and have a most agreeable flavour. The seeds are sown in August or early spring, in drills made from sixteen to twenty inches apart. The drills should be watered a few times in summer to assist the growth of the crop.

Chou de Burghley is a most delicious vegetable, a cross between the Cabbage and the Broccoli. If seeds are sown in the open in May and the seedlings finally transplanted in fairly rich, well-drained soil in August to September, the plants will produce medium-sized heads like Cabbage, with a small Broccoli in the centre, ready for cutting the following spring, say, April to May.

If a considerable breadth be grown, some of the Cabbage-like heads which are fully formed without the Broccoli, as early as November, and withstand frost well, make most delicious eating during the winter, when cut and cooked like white-heart Cabbage, more especially when flavoured with bacon or boiled in bacon-water. The culture of the crop is simplicity itself. The plants are treated just like Cabbages, only they prefer rather more generous treatment, and require good, rich soil.

Chou de Russie or Russian Kale (Brassica oleracea acephala var.) is a most delicious vegetable, resembling a Cabbage in form, but having curious, deeply-cut, glaucous foliage. In November the plant forms a dense head, from which a profusion of sprouts is produced in early spring; they are very tender when boiled and of a more delicate flavour than Kales. This Brassica is extremely hardy, and its culture is the same as for ordinary Kales, the seeds being sown out-of-doors early in April.

Couve Tronchuda or Seakale Cabbage, which is known as Portugal Cabbage or Portulaca (Brassica oleracea costata) is a delicious winter vegetable, and not nearly so extensively grown as it should be. If seeds are sown in the open early in May, the seedlings should be treated in the same manner as ordinary Cabbage seedlings. The plants are ready for use from November to January. A second sowing made in June will provide a crop for use during February and March. The plants produce good heads and leaves with thick, fleshy midribs. The latter are boiled separately and served like Seakale, while the green, fleshy leaves are cooked and eaten as ordinary Cabbage, after being stripped from the midrib. *E. A. Saunders.*

(To be continued.)

HOME CORRESPONDENCE.

The Blue Primrose.—I was much interested in the article on the above subject (p. 232), but fear the small beginnings of the Blue Primrose are now lost in obscurity. Had Mr. G. F. Wilson put the subject in concrete form as the late Rev. W. Wilks did in the case of the Shirley Poppy, the information would now be valuable, since good blue Primroses have become a reality. The history of the variety Scott Wilson was what should have been recorded. I well remember the late G. F. Wilson bringing baskets of blue Primroses to the meetings of the Royal Horticultural Society, but he also brought flowers of Gentiana acaulis that were purple, as well as blue ones. The old blue Polyanthus was named Primula elatior caerulea in the early eighties of last century, but it was merely a garden Polyanthus, and not related to Primula elatior, with the open throat. Neither had it anything to do with P. amoena which appears to have been confused with P. Sieboldii from Japan. Some very respectable blue varieties were developed from the latter during the eighties and nineties of last century. One was named Bruce Findlay. What has become of these? They were really attractive plants, hardy and easy to grow. I have had P. Sibthorpii under my care, and it was reputed to be the parent or origin of the coloured garden Primroses. There seems no need to suppose hybrid origin to account for blue Primulas, since blue varieties have been developed in P. sinensis, P. Sieboldii, and now in the garden Primrose without the hybridisation of any two very distinct species. Even if the blue Polyanthus had been used in crossing, many modern writers are of opinion that it originated from P. acaulis. *J. F.*

Acidity and Lawns.—We read with much interest the article which appeared in a recent issue of your journal, entitled, "On Lawns," because our numerous experiments in turf culture give support to many of the views there expressed. The suggestions in your article are, of course, chiefly applicable to turf used for golf, tennis, croquet or bowls, rather than to the "pleasure lawns" which have always been, and are still, such a unique feature of our English gardens and parks. The best and oldest of the latter do contain a large variety of grasses and small Clovers, and to reproduce verdant green turf, soft to the tread, more species must be sown, and they must be encouraged by different treatment and different fertilising than that suitable for sports turf. For quite a number of years we have advocated withholding lime from tennis lawns and golf greens, as we have come to the conclusion that in many cases a dressing of this kind is not in the best interests of the turf. We are compelled to state, however, that much depends upon the character of the herbage present. Some grasses, such as the Peas and Cynosurus are lime lovers, and the method of allowing the soil to become acid is not likely to benefit them, so that the treatment to be effective in this case must be accompanied by the introduction of other and more suitable grasses. The Agrostis and Festuca species appear to benefit considerably from the acid treatment, and as these are without doubt the most desirable grasses for sporting turf, there is much to be said in favour of the method. The conclusion we have drawn from our experiments is that acidity of soil does not lead to any direct increase in the development of the desirable Agrostis and Festuca species, but appears to restrain the growth of many other kinds of vegetation. At the same time it must not be forgotten that certain weeds and mosses flourish on acid soil, and if the method advocated in America is to be gradually adopted in this country there is no doubt that the standard of manurial treatment will have to be raised to enable the grasses to prevail against such species. We are aware, of course, that soil acidity prevents the decomposition of organic residues, and the subsequent release of nitrogen. For this reason an artificial dressing is all the more essential. If we may express an opinion on the subject, however, we must confess we are doubtful as to the wisdom of repeated doses of a purely nitrogenous fertiliser, even under the system of continual watering. According to our experience, the application of nitrogen alone—however successful at first—must eventually lead to deterioration in the turf unless supplemented annually by a more complete form of manuring. It is certainly true that species of Agrostis are stated to be most successful in America, and to some extent the same is true of British conditions. The fine Fescues, however, also contribute largely to some of our best turf, in marked contrast to their behaviour in America. So far, then, as Britain is concerned, a combination of Fescues and Agrostis would appear to represent the ideal. It is, of course, essential to obtain the correct form of Agrostis so highly prized for its dwarf foliage, creeping habit and capability of withstanding hard wear. Unfortunately, this is a matter of some difficulty owing to the extraordinary resemblance the pure seed bears to other forms of Agrostis, some of which are rank, coarse weeds that would do untold harm of sown on a lawn. *Sutton and Sons.*

Seedling Snowdrops.—As I was one of the correspondents referred to by Mrs. Thatcher on p. 210, it is interesting to me to be reminded that no satisfactory conclusion was then arrived at regarding the seeding of Snowdrops. At one time, I think it was in April, 1925, I sent the Editor a number of capsules, collected here, to prove that Snowdrops did produce seeds, and suggested a trial at Wisley, or Kew, when my friend, Mr. P. Murray Thomson, wrote me suggesting I should make the trial myself, sending me, at the same time, a number of Herefordshire-grown capsules to test with my own. These included seed-pods of both G. nivalis and G. plicatus, and they were kept on a shelf in the fruit room along with the home-grown ones until September 22, when I de-podded them. There were 180 plump seeds of G. nivalis, and 90 of G. plicatus, but when I turned my attention to the home-grown capsules, my disappointment was very great, for out of a considerable number of what were, when picked, plump-looking seed-pods, similar to those I forwarded to the Editor of *The Gardeners' Chronicle*, not one seed was forthcoming, nothing but what Mr. Holmes, under the *nom-de-plume* of *Formakin*, called "woolly-looking matter." I cannot attempt to explain this by any other reason than by remarking that our Snowdrops flower very early in the year and are usually in their beauty before the end of January, when few insects are available for pollenating the flowers, but I cannot understand why the seed-pods swell to a fair size if the flowers have not been fertilised. Regarding the Herefordshire-grown seeds, I have also a most disappointing record; they were sown in a box containing ordinary potting compost, the same day they were removed from the pods, and the box stood in a cold house all that winter and spring, but not one germinated. About mid-summer, 1926, I stood the box at the back of a north wall, as someone had suggested that as a likely place for them to germinate, but the Snowdrops of 1927 have come and gone, and still there is no sign of even one tiny seedling. It is possible that very different results might have been obtained had the Snowdrop seeds been sown at once, and not dried off, yet they were quite plump when sown in September. A further examination is taking place this year, and should seeds be found at any time, I will be only too pleased to communicate with anyone interested. *A. T. Harrison, Culzean Castle Gardens.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held on March 18, the members of Committee present were Mr. J. B. Adamson (in the chair), Mr. R. Ashworth, Mr. A. Burns, Mr. A. Coningsby, Mr. J. Cypher, Mr. J. Evans, Mr. A. Keeling, Mr. D. McLeod and H. Arthur (Secretary).

First Class Certificates.

Cattleya Enid alba var. Rex.—A magnificent flower with pure white sepals and petals: lip large, the base almost solid in colour, light maroon. The plant carried nine blooms.

C. Enid alba, var. Regina.—A fine form, with pure white sepals and petals; base of lip light maroon, slightly veined. The plant carried eleven blooms. A Silver-gilt Medal and Cultural Certificate was awarded in each instance.

Odontoglossum crispum ashlandense.—A large flower of good form and substance, white, with fimbriated segments; large, well-shaped lip, with coloured blotch. From R. Ashworth, Esq. A Silver Medal was also awarded.

Brasso-Cattleya G. V. Llewelyn (B.-C. Cliftonii Grand Monarch × C. Dominiana).—A fine flower of good colour; lip rosy purple, with yellow throat. From G. V. Llewelyn, Esq.

Awards of Merit.

Odontioda Brewii var. Brunette; O. Olympia var. Magnificent; Cattleya Mrs. Ashworth (Suzanne Hye de crom × Mendelii var. Stuart Low); Sophro-Laelio-Cattleya ashlandense (C. G. Woodhams × S.-L. ?); and S.-L.-C. Anzac, Ashlands var. (parentage unknown). From R. Ashworth, Esq.

Odontoglossum Temeraire, O. Anzac, Towneley Grove var.; Odontioda Brewii var. Distinction, and *Cypripedium Nephelia (Cyclops × Lord Wolmer).* From J. B. Adamson, Esq.

Dendrobium Merlin, Bolholt var., D. Merlin var. nobilius, D. Leander (Thwaitesiae × Austin). Cypripedium Elidia (Elsie II × Idiana Leecana), and *Odontioda Cornelest var. grandiflora.* From Captain W. Horridge.

Cypripedium Hesketh (Charlotte Dillon × Hera Mostyn); Cattleya Tityrana, Llewelyn's var. (Tityus × Trianae Grand Monarch), C. Tityrana, Hesketh var., and C. Empress Frederick, Llewelyn's var. From G. V. Llewelyn, Esq.

Cultural Certificates.

To Mr. J. Howes, for Cattleya Enid alba vars. Rex and Regina, and Coelogyne intermedia; to Mr. A. Burns, for Coelogyne Mooreana; and to Mr. A. Coningsby, for Dendrobiums.

Groups.

J. B. Adamson, Esq., Blackpool (gr. Mr. J. Howes), staged a group (Gold Medal) that contained Odontoglossum Temeraire, O. Anzac, Towneley Grove var., and O. Arachne; Odontioda Brewii var. Distinction, O. Princess Mary, and O. Viscount Lascelles; Brasso-Cattleya The Baroness var. Margaret, Cattleya Enid alba in variety, Coelogyne intermedia, Dendrobium xanthocentrum, Towneley Grove var., Trichopilia sanguinolenta, etc.

R. Ashworth, Esq., Newchurch (gr. Mr. W. Hough), was awarded a Gold Medal for a group of Cattleyas and Brasso-Cattleya magnifica, Odontoglossum crispum ashlandense, O. Purple Queen, O. Hilda, and O. amabilis; Odontioda Brewii var. Brunette, and O. Olympia var. Magnificent. Captain Horridge, Bury (gr. Mr. A. Coningsby) was awarded a Silver-gilt Medal for a fine group of Dendrobiums in great variety.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), received a Silver Medal for a group including a well-flowered plant of Coelogyne Mooreana. G. V. Llewelyn, Esq., Southport, was awarded a Silver Medal for a group containing Cattleya Tityrana, Llewelyn's var., Brasso-Cattleya G. V. Llewelyn and Cypripediums in variety. J. McCartney, Esq., Bolton (gr. Mr. C. F. Potts), staged Dendrobium hybrids, and D. linguiforme.

To Messrs. J. Cypher and Sons were awarded a Large Silver Medal for a group of Dendrobium xanthocentrum, D. Apollo alba, D. Virgil, D. Thwaitesiae, Veitch's var., D. Wardianum, Bifrenaria Harrisoniae, Ada aurantiaca: Cymbidium President Wilson, and Cypripediums in variety. Messrs. Keeling and Sons, Bradford, showed Dendrobium Merlin, D. Jamesianum, D. atroviolaceum and D. Thwaitesiae. Mr. J. Evans, Colwyn Bay, sent Odontoglossum Harryanum × Rolfeae, and Dendrobium plumptonense. Mr. D. McLeod, Chorlton-cum-Hardy, showed Cypripediums.

BRITISH MYCOLOGICAL.

At the March meeting of the British Mycological Society, held at University College, London, Dr. G. H. Pethybridge, Vice-President, occupied the chair.

The first paper was by Mr. W. R. I. Cook on the "Influence of Environment on Infection by Ligniera Junci." This fungus, which is one of the Plasmodiophorales, infects the roots of water and marsh plants. It is especially abundant in the neighbourhood of Sevenoaks, Kent, and an attempt was made to determine the factors of habitat favouring the growth of the fungus. The water was found to be slightly acid, with an excess of iron. Plants were grown in Sach's culture solution with a slight excess in the amount of iron usually employed. Experiments show that water plants grown in the solution can be infected at Ph 5 to Ph 8 when the roots are protected from light by covering them with silver sand, but without this protection no infection is obtained even at the optimum Ph value. Further, infected plants grown in aqueous culture media, without protection of the roots from light, become free of infection in less than three months. The Plasmodiophorales are a remarkably uniform group, but a consideration of their responses to physiological factors shows them to be very diverse, *e.g.*, calcium appears to inhibit the growth of Plasmodiophora brassicae, the causal organism of finger and toe disease, whereas it seems to stimulate Spongospora subterranea, which produces powdery scab of Potatos.

Miss M. P. Hall followed with an account of "Zonation in Cultures of Monilia fructigena." Everyone who has grown fungi on solid media has noticed that some species produce concentric rings characteried by greater or less production of spores. Zonation in cultures of M. fructigena is caused by the alternation of bands of aerial mycelium bearing conidia, with regions of flat, sterile growth. The zonation is conditioned by the nature of the nutrient medium, the concentration of which should be such that the non-staling type of growth is given. It is essential that the initial reaction of the medium should be acid unless the constituents are such that the reaction becomes acid as growth proceeds. A synthetic medium (containing glucose and the usual mineral salts) with ammonium chloride as the nitrogen source was found most suitable, although Potato extract agar acidified with ·5 per cent. malic acid gave good results. The growth of this fungus is affected by light and darkness. In darkness a thick weft of flat surface growth is produced and zonation is completely suppressed if the temperature is kept constant. The aerial type of mycelium is produced in light. Results based on dry weight determinations of the mycelium indicate that a greater amount of mycelium is formed in the dark than in corresponding light cultures. This can be correlated with the fact that the rate of spread, as measured by the diameter of the cultures, is less in the dark and staling occurs much earlier. This staling is most pronounced in neutral media, and can be delayed by increasing the acidity of the medium. Under normal conditions of light and on a suitable medium the zonation is a daily one. Variation in the length of exposure to daylight showed that an exposure of three hours daily was sufficient to cause good zonation. Exposures of less duration gave less intense zones, which were often incomplete. It was found that artificial light could be substituted for daylight. Measurements of the diameter of the zones showed that they were formed just behind the position of the growing tip at the time when the exposure was made. Cultures kept in the dark and given a daily variation of temperature showed zonation. The position of the zones corresponded to the temperature change. No zonation was produced when the cultures were kept at a constant temperature. The zones produced by this temperature variation, although well marked, were not comparable to those caused by alternating day and night.

To occupy the short time remaining before lunch, Mr. J. Ramsbottom showed a couple of lantern slides which illustrated the (apocryphal) origin of the names "Toadstool" and "Horse-Mushroom."

After lunch, Mr. K. R. Mohendra gave his paper on "Variation in Sphaeropsis Malorum." Starting with a single hyphal tip culture, several strains of Sphaeropsis Malorum were obtained. Spores from a single pycnidium of one of the strains, on plating out, gave individuals of two distinct types: (1) with black mycelium; (2) with white mycelium. The ratio of these black and white individuals did not keep constant. Thus, in July and August, there were twenty-eight blacks to seventy-four whites, or roughly 1:3, in October the ratio was 1:6, in November 1:22, and in December the black individuals practically disappeared. Spores from single pycnidia of white individuals on plating gave white individuals only. While spores from single pycnidia of black individuals gave mainly black individuals and a few white ones, on repeated culture it was found that the percentage of white colonies obtained from the spores of a single pycnidium increased, although one strain has been obtained which gives only black individuals and has, so far, remained steady in its characters.

The individuals of the white type obtained from spores of a single pycnidium showed considerable variation among themselves. Some were sporing heavily while others were practically sterile. The same was true of the black individuals, as highly sporing to practically sterile white strains could be obtained from spores out of a single pycnidium on the one hand and strains of highly sporing power on the other.

The paper on "Seed Mixtures and the Incidence of Fungal Diseases," by Mr. E. Wyllie Fenton, was then read by Mr. Ramsbottom, in the unavoidable absence of the author. It is, of course, well-known that certain factors contribute towards the incidence of fungous diseases. A plant, like an animal, is more likely to be attacked when the food is deficient in one or more of the necessary elements. On the other hand, it is not always easy to give definite evidence of this. In 1924, a field was divided into five plots and each plot was sown with different seed mixtures; each plot was of equal size. These plots were regularly stocked, the stock carried by each being regulated by the amount of herbage given by the plots, so that each plot was worked under ordinary farm conditions. In addition, a small portion of each plot was fenced off for hay so that a thorough comparison could be made. Different seed mixtures were used. Late in the autumn it was very noticeable that one plot was very yellow in colour, while every hay plot was of the same colour. This could be observed even from the top of neighbouring hills. This yellow colour was due to the presence of a rust (Uromyces dactylidis) on this plot and also in the hay plots. Owing to the severe drought the grass which was most evident was Cooksfoot; the proportion of the other grasses present was very small. It was also noted that the Rye Grass in the plot was rusted, but that beyond an occasional plant, Rye was not affected in the other plots. Considering the ground covered by each plant, in June and late in October, it is evident that in the rusted plot the proportion of Cooksfoot was high and Wild White Clover practically nil. In the other plots this was reversed. After the summer drought the rusted plot had far more space bare of vegetation than the other plots.

In the case of the hay of all plots, the tall growth prevented the growth of any surface Clover such as either Wild White or Dutch White. Another point was that the Red Clover had died out the previous year, so that the hay consisted chiefly of grasses.

In the pasture the trouble is lack of nitrogen. The absence of any reasonable amount of Clover (as Dutch White early died out) deprived the grasses of a sufficient supply of nitrogen. The droppings from the stock grazing had not been sufficient to replace the nitrogen taken from the soil and removed in the vegetation eaten. In other plots the high proportion of Wild White Clover supplied the deficiency. The removal of grasses for hay means the removal of considerable quantities of nitrogen, and as there are no Clovers left, it means a marked deficiency. In fact, there was a greater deficiency in the hay area than in the pasture.

Mr. E. H. Ellis then gave an account of "Fungi in Japanese Carvings." Japanese native dress is without pockets and articles in common use are fastened to a girdle by means of a cord with a sort of button or toggle at the end. These toggles (netsukés) are made of wood, ivory or other materials, and are carved to represent matters associated with religion, old legends, natural objects and daily life. Larger fungi are sometimes represented, and those shown included the Matsu-dake (Cortinellus edodes), and Shii-take (Cortinellus Shiitake) two edible fungi sold in the markets in Japan; Amanita muscaria, and a Russula with the top nibbled by a snail. Fomes lucidus (Reishi) appears not only in Japanese but in Chinese design. It has an association of longevity and happiness, and in China forms the basis of the design of the "jui" sceptres.

The meeting ended by Mr. J. Ramsbottom continuing his series of "Fragmenta Mycologica." First were shown a number of coloured lantern slides of common fungi which had been made by Col. C. T. Green. These were followed by a long series of lantern slides prepared from photomicrographs of Orchid seedlings; a running commentary was made on the divergence of the "symbiotic" and "asymbiotic" interpretations of the facts.

The different papers led to interesting discussions and comments.

LONDON DAFFODIL SHOW.

April 12 and 13.—The London Daffodil Show, held by the Royal Horticultural Society, took place on the above dates, at Vincent Square. Many experts considered it the finest Daffodil show ever held; be that as it may, the display was a particularly fine one, exhibits numerous, and the standard of quality very high. Non-competitive displays filled all the space next the walls of the hall, and others occupied positions at the ends of the stages where the competitive exhibits were placed.

Many fine, new varieties were exhibited, and the Daffodil Committee made numerous awards. A notable feature of the exhibition was the brilliant orange colouring in the cups of many new sorts.

The Royal Horticultural Society provides the hall and staging, and the medals awarded at this show, but the cash prizes are provided by subscriptions, the responsibility of collecting and disbursing the various sums being in the hands of Mr. E. A. Bowles, Mr. P. R. Barr and Mr. C. H. Curtis.

Narcissus and Tulip Committee.

Present: Mr. A. E. Bowles (in the Chair), Miss E. Willmott, Mrs, Brodie. Mr. G. W. Leak, Mr. Peter R. Barr, Mr. W. Poupart, Mr. G. Churcher, Mr. W. B. Cranfield, Mr. P. D. Williams, Mr. H. Backhouse, Mr. F. Secrett, Mr. Alfred W. White, Mr. A. Goodwin, Mr. C. W. Needham, Sir W. Hall, Mr. J. Jones, Mr. Arkwright, Mr. W. F. Copeland, Mr. F. H. Chapman, Mr. F. Barchard, Mr. Charles H. Curtis, Mr. F. G. Hawker, Rev. R. Meyer, Mr. J. W. Pearson, and Mr. Herbert Smith.

First Class Certificate.

Mitylene.—A handsome bicolor Incomparabilis of good type. The perianth is white and the pale yellow, frilled corona has a faint white edge. Shown by Mr. J. L. Richardson.

Awards of Merit.

Holland's Glory.—This is a very distinct flower. It is a sport from Emperor, and the flowers are fully double, both in the two rows of perianth segments and in the tube. It is sulphur-yellow in colour. Shown by Messrs. L. van Leenwen and Sons.

Mephisto.—A Barrii variety of compact form. The yellow perianth segments overlap, making a rounded flower. The flat corona is fiery-orange in colour, rather paler at the base. Shown by Mr. P. D. Williams.

St. Egwin.—A large and shapely Incomparabilis of almost self yellow colour. The perianth is broad and rounded, while the corona is cupped and slightly deeper in shade than the bright yellow of the perianth. Shown by Mr. P. D. Williams.

Scarlet Perfection.—A rounded Incomparabilis variety which has deep primrose coloured, overlapping perianth segments and a broad, flattened, frilled corona of rich orange colour. Shown by Messrs. R. H. Bath, Ltd.

Therapia.—This is a handsome bicolor Barrii variety. The rounded perianth is white, and the flattish, yellow corona has a broad, orange-coloured rim. Shown by Mr. J. L. Richardson.

Turin.—A splendid Barrii which has a milk-white, rounded perianth, with overlapping segments, and a flat corona with a broad, orange coloured rim. Shown by Mr. P. D. Williams.

Recommended for Trial at Wisley.

Duddington.—A very handsome, large Trumpet of rich yellow colouring. The tube is long and lightly recurved. Shown by Messrs. Dobbie and Co.

Kingsley Fairbridge.—This is a beautiful bicolor Trumpet variety of large size and creamy-white colour. The tube is long, shapely and widely reflexed, and the perianth is semi-transparent. Raised by the Rev. G. H. Engleheart.

Penny-come-Quick.—This is a Barrii of very striking appearance. It has a rounded, pure white perianth, and a flat corona which is yellow in the centre and bright orange at the margin. Shown by Mr. P. D. Williams.

Pride of the Market.—An Incomparabilis variety of very striking appearance. It is a shapely flower of first-rate type. The perianth is yellow and the tubular corona is of rich orange colour and serrated at the ends. Shown by Messrs. R. H. Bath, Ltd.

Preliminary Commendation.

Red Sea.—A bicolor Incomparabilis variety which has a primrose coloured perianth and a frilled, orange-coloured corona. Shown by Mr. J. L. Richardson.

Competitive Classes.

There were only two exhibits of twelve varieties of any Division. The first prize was awarded to Mr. J. L. Richardson, who had particularly good vases of Galopin, Incomparabilis Seraglis, Kilter and Midas, Barrii varieties, and Suda, which received an Award of Merit a week previously. Mr. W. A. Watts was awarded the second prize, and his chief varieties were John Evelyn and Joker Incomparabilis, and Phyllis Vansittart, Trumpet.

Of the three exhibits of twelve large Trumpet varieties, the best was shown by Mr. G. L. Wilson, who had vases of Earl of Antrim, His Excellency, Florists' Delight and several good seedlings. In his second prize exhibit, Mr. J. L. Richardson showed Master Robert, White Dame and Golden Flag. The Donard Nursery Co. were third.

The best twelve Incomparabilis varieties, shown by Mr. J. L. Richardson, included Solario, Golden Pedestal, Whitewell and Croesus. The Donard Nursery Co. were second. and they had good vases of Market Glory, Dingo and Festive. Mr. W. A. Watts was third.

There was no exhibit in the classes for Barrii and for Poeticus varieties. The first prize for twelve Leedsii varieties was won by Mr. W. A. Watts, who staged several seedlings and Honeymoon, Evangeline and Countess of Southesk; the Donard Nursery Co. were second.

The following classes required only six varieties each. The first prize for yellow or lemon-coloured Trumpet varieties was won by Mr. G. L. Wilson, who had a good vase of Florists' Delight, and several seedlings. In his second prize collection, Mr. J. L. Richardson showed Master Robert, Golden Flag and Loyalist. Mr. W. B. Cranfield was third. The best white Trumpets were also shown by Mr. G. L. Wilson, whose chief varieties were White Conqueror, White Frost and Beersheba. Mr. Richardson was again second. The Donard Nursery Co. had the best of many exhibits of bicolor Trumpets, and they included Jersey Cream, Selina Malone and Herod. Mr. G. L. Wilson was second.

In the class for yellow Incomparabilis, Mr. Wilson was first and Mr. Richardson was second, both with good exhibits. The former included Killigrew, Hospodar and seedlings, while the latter had Croesus and Golden Pedestal of great merit. Mr. Richardson had the best bicolor Incomparabilis; his chief varieties were Great Warley, Whitewell and a seedling. The Donard Nursery Co. were second and they had Fortune and Macebearer amongst their vases.

There were no Barrii flowers in Class 12, and in the bicolor Barrii class only the second prize was awarded.

In the class for Giant Leedsii varieties, there were many exhibitors, and the first prize was won by Messrs. H. Chapman, Ltd., who had beautiful blooms of Suda, Mitylene and White Sentinel. Mr. Richardson, who was second, also had a good vase of Suda. In the class for small Leedsii, only the second prize was awarded. The Triandrus hybrids was only a small class. Mr. W. A. Watts, who was first, showed mostly seedlings. Mr. W. B. Cranfield was second.

The classes for Cyclamineus and for Jonquilla hybrids were not represented, and there was only one exhibit of Tazetta hybrids. This was a good one and Mr. W. A. Watts, who had pretty vases of Xerxes and of Glorious, was awarded the first prize. The six exhibits of Poeticus varieties made a good display and most of the flowers were of good quality. Mr. J. L. Richardson, who was first, had good examples of Horace and Matthew Arnold. Messrs. H. Chapman, Ltd., were second. Of the two exhibits of Double Daffodils, the better was that of Mr. W. F. M. Copeland, who had good vases of Rubina, Grape Fruit and Irene Copeland.

New Varieties.

The classes for New Varieties were for open competition, and while they contained many meritorious and interesting novelties, quite a number were mediocre. The class for twelve varieties, raised by the exhibitor, was very interesting, and in his first prize collection, Mr. P. D. Williams had many exceptionally good flowers. Several were Incomparabilis seedlings of great merit. St. Egwin, which received an Award of Merit, Traboe, Picador and Carveth, three very good Barrii varieties, and Godrevy, a small Incomparabilis with a vividly-coloured corona, were, perhaps, the very best of this collection. Mr. G. L. Wilson was second, and he had Mary Malony, a good Incomparabilis, and several seedlings.

The Rev. W. R. Meyer, Watton-at-Stone, Herts., was first in the class for six varieties, raised by the exhibitor, and he included two very good Leedsii varieties which had coloured tubes. In his second prize exhibit, C. H. Cave, Esq., Sidbury Manor, Devon, had very good Incomparabilis and Leedsii seedlings. E. T. England, Esq., Exeter School, Exeter, was a good third in this interesting class, and he included in Cap and Bells a very uncommonly marked flower. F. Barchard, Esq., Forsted Place, Uckfield, and Rev. J. T. Pearce, Mayfield, Epsom, who were first and second, respectively, in the class for three varieties, both showed seedlings. There was good competition in the class for twelve varieties, not in commerce. Mr. J. L. Richardson, who was first, included Seraglio, an Incomparabilis and Brighter London, a Barrii, in his exhibit. The best six varieties were shown by Rev. R. Meyer, who had good vases of L. Hulbert and S. Mott, of the Incomparabilis type; E. T. England, Esq., was second. Capt. H. S. Hawker, Ermington, Devon, had the best three similar varieties, and he showed Hafiz, a Poeticus, and Sicily, a large Trumpet. Mr. Copeland was second.

The first prizes for three varieties and for one variety raised by the exhibitor, were won by J. S. Arkwright, Esq., Kinsham Court, Presteign, Radnorshire, who had good Incomparabilis seedlings. Mr. F. A. Secrett, who included Leah and Rachel, which have vivid coronas, was first in the class for three varieties, not in commerce; Mr. R. V. Favell, was second and he had Gulliver and Zenno of the same type.

Market Classes.

The best box of Daffodils of any one variety (Division I), as packed for market, was shown by The Park Fruit Farm, Truro, who had a splendid box of the large Trumpet Herbert Smith, a small box containing only eight bunches; second, Messrs. J. T. White and Sons, Spalding, with a big box of King Alfred.

The best box of Daffodils of any one variety with red colouring, Division II or Division III, was exhibited by Messrs. J. T. White & Sons, Spalding, who showed the fine orange-cupped Crœsus in splendid condition; the second prize was awarded to The Park Fruit Farm, Cornwall, for Firetail.

The Park Fruit Farm excelled in the Class for a box of Daffodils, Division IV, with St. Olaf, in which Miss J. Evelyn, Presteign was second with Fawn; and in the Class for a box of Daffodils, Division IX, with Horace, Messrs. J. T. White & Sons being second with ornatus maximus.

Six growers competed in the class for nine market bunches of Daffodils, Division I, twelve blooms in each, staged in R.H.S. vases. The premier award was given to Messrs. J. T. White & Sons, for magnificent blooms of Whistler, Tresserve and King Alfred; second, Mr. F. A. Secrett, Marsh Farm, Twickenham, for Emperor Kingsley Fairbridge and Geraldine.

In the similar class for nine bunches, Division II or III, Mr. P. D. Williams, Lanarth, won outstandingly with superb flowers of Trelan, Gulliver and Penny-come-Quick; second, Messrs. J. T. White and Sons, with Flame, Croesus and Lady Diana Manners.

The better of two exhibits of three varieties, Division IV, was shown by Messrs. J. T. White and Sons, their varieties being White Delight, Ettrick and Mrs. A. W. White. There were also two exhibits in the class for nine bunches of Division IX, in which Mr. F. A. Secrett excelled with Huon, Medusa and Virgil.

Single Bloom Classes.

The classes for single blooms numbered twenty, and in most cases, the competition was keen. These individual flowers were some of the best in the Show and in many cases Irish growers were successful.

The following are the first and second prize-winners in the respective classes.

1.*a.*—First.—Mr. J. Lionel Richardson, Waterford, with Royalist, a magnificent specimen; second, Mrs. Alfred West, Kilcroney, Bray, with Master Robert.

1.*b.*—This class attracted ten exhibitors: First, Mrs. West with Beersheba; second, Mr. F. H. Chapman with Callirhoë.

1.*c.*—This class also attracted ten exhibits: First, Mr. G. L. Wilson, Broughshane, Co. Antrim, with Queen of Ulster; second, Mr. J. Lionel Richardson, with a seedling 2/27, a flower with a large white perianth and long, sulphur trumpet.

11.*a.*—The fourteen flowers exhibited in this class differed widely. The first prize was awarded to Mr. Richardson for Alori, a beautiful flower with flat, perfectly formed butter yellow perianth and darker, fluted trumpet; second, Messrs. Barr and Sons for Vladimir.

11.*a.* (with red colouring).—Many beautiful blooms were forthcoming in this class, in which the premier award was won by Messrs. Barr and Sons with a seedling, Nx 3602, a flower with a glorious wide, orange cup thrown into bold relief against the well-formed, pale lemon perianth; second, Mr. Richardson with Fortune.

11.*b.* (without red colouring).—First, Mr. Richardson with Solario; second, Mr. C. H. Cave, Sidbury Manor, Sidmouth, with Revenge.

11.*b.* (with red colouring).—First, Messrs. Barr and Sons with a seedling Nx 4100. The cup is of deep orange and almost crested at the margin and the perianth is ivory: a grand flower; second, Mr. Secrett with Tolvin.

III.*a.* (with red).—The best of eight exhibits was shown by Mr. Richardson, who had a choice bloom of Seraglio; second, Mr. West with the same variety.

III.*b.* (with red).—First, Mr. Richardson with King of Clubs; second, Mr. H. G. Longford with Therapia.

IV.*a.*—This class attracted thirteen good exhibits of which the best was shown by Mr. Richardson in Mitylene; second, Mr. West with Suda.

IV.*b.*—A small class in which Mr. Watts excelled with Honeymoon and Mr. West was second with Samaria.

V (Trumpet shaped).—First, Mr. Wilson with Harvest Moon; second, Mr. West with Icicle.

V. (Cup shaped).—Mr. Cranfield excelled in this class with a delightful bloom of Venetia; second Rev. G. T. C. Pearce with Madonna.

VI.—First, Messrs. Barr and Sons, with a Cyclamineus hybrid named Orange Glory; second, Mr. E. H. C. Thurstons, Chandlers Ford.

VII.—First, Mr. Richardson with Golden Goblet.

VIII.—Mr. Richardson also excelled in this class with Glorious; second, Mr. Watts with Xerxes.

IX.—First, Mrs. West with Dactyl; second, Mr. Watts with Horace.

X.—Mr. Watts excelled in this class with a seedling, B.96, a big flower with clear yellow perianth mixed with shorter orange segments in the centre; second, Mr. Copeland, Southampton, with Rubina.

Amateurs' Classes.

There were nineteen classes in this section, nine of which were restricted to exhibitors who have never won a prize at a Daffodil show under the auspices of the R.H.S., and one open to all for a collection of 36 varieties.

In these classes the first nine were for six varieties in certain sections of the flower, three stems of each sort. Many choice blooms were forthcoming, and taking the section as a whole, it attracted outstanding good exhibits.

The first prizes were awarded as follow:—

Division I.—Miss V. Warren, Canterbury, for King Alfred Weardale Perfection, Mme. de Graaf, Cleopatra, Monarch and Pride of Kent. *Division II.*—Mrs. Alfred West with Pilgrimage, Bernadino, Lioba, Croesus, Great Warley and Macebearer. *Division III.*—Miss Warren with Greeneye, Fair Maiden, Sunrise, Queen of Hearts, Cossack and Incognita. *Division IVa.*—Mrs. West with Czarina, Mount Erebus, Mrs. Neale, Irish Pearl, Kingdom and Lord Kitchener. *Division IVb.*—Mr. H. R. Darlington with Evangeline, Diana, White Slave, White Lady, Katherine Spurrel and Queen of the North. *Division V.*—Mr. Reginald Harris, Camberley, with Ideal, Elvira, Orange Cup, Triumph, L. Koster and Aspasia. *Division IX.*—Mrs. West with Mr. Arnold, Socrates, Thetis, Raeburn, Oracle and John Masefield. *Division X.*—Mr. R. Harris with Golden Rose, The Pearl, Sulphur Phœnix, Argent, Orange Phœnix and Butter and Eggs.

In the novices section prominent prize winners were Mr. A. W. Bell, New Barnet, Mr. D. Acheson, Berkeley, Mr. H. A. Marriner, Little Brampton, and Mr. R. V. Favell, St. Buryan, Cornwall.

The collections of thirty-six varieties made a fine contribution to the show, and the quality generally was excellent. The 1st prize was awarded to Mr. J. S. Arkwright, Kinsham Court, Presteign, Radnorshire, with magnificent flowers of such sorts as Honey Boy, Firetail, Corgi, White Nile, Beersheba, Kestrel, Michael, Red Sundrew and Robin Redbreast; second Mr. H. J. Morris, Penryn.

The best bowl of Daffodils and the best basket of Daffodils were shown by the Donard Nursery Co.; the best vase of Daffodils by Mr. W. A. Watts, St. Asaph; the best group of Daffodils arranged on a table by Mr. H. R. Darlington; the best R.H.S. vase of Daffodils by Messrs. Dobbie & Co. who showed glorious flowers of Duddingston, and the best R.H.S. standard vase of Daffodils, two varieties, by Mr. W. F. M. Copeland, who made a pretty vase with the Double Iphiginia and an unnamed Leedsii.

Groups.

A particularly attractive exhibit was arranged by Messrs. Barr and Sons. They staged many admirable seedlings, as yet unnamed, especially of the fascinating Leedsii varieties which have Peach, or apricot-tinted coronas. As at the previous show, Messrs. Barr and Sons staged a goodly proportion of seedling Incomparabilis with bold, vividly-coloured coronas and large Trumpet varieties of rich golden colouring. Of their many excellent named varieties we especially admired Nursemaid, The Czar, White Sentinel, Pelican, Sunblaze, Franciscus Drake, Sunny Isle and Gallipoli, of the Incomparabilis division; Glory of Haarlem, Dainty Bess and Mrs. J. H. Barr, of the large Trumpets; Firetail and May Blossom, two beautiful Barrii Daffodils Helios and Orange Cup, Tazetta varieties, and Sarchedon, a lovely Poeticus variety.

A large collection arranged by Messrs. R. H. Bath, Ltd., was especially rich in Incomparabilis varieties. Of these, Orange Delight, Rubini, Scarlet Queen, Pride of the Market, Torrid, Fenland Gem and Isoline, which have vividly coloured coronas, were particularly attractive. Of the many splendid large Trumpet varieties, Citron Queen, a most shapely flower with widely frilled tube, Premier, Monarch, Dawson City and many seedlings were of great merit. Besides the two types above-mentioned this excellent collection included many good varieties of the Barrii, Poeticus, Leedsii and Tazetta types.

In their noteworthy collection, Messrs. J. R. Pearson and Sons set up vases of almost all the different types. Of the large Trumpets, Tenedos, Tresserve, Refined Gold and Dawson City were admirable. Chief amongst the many vividly coloured Incomparabilis varieties were Milford Haven, Orange Glow, Franciscus Drake, Croesus, Sunrise and Fortune. Firetail, a Barrii variety, and Hera, a dainty little Leedsii, also possessed great charm. In addition to these named varieties, there were also several vases of uncommonly good seedlings.

Along the front of his exhibit, Mr. J. H. Barr had vases of Sweet Jonquil, N. Bulbocodium citrinum, N.B. conspicuus and Queen of Spain Daffodil. These charming little "old-fashioned" varieties attracted a deal of deserved admiration. The decorative little Ladybird was again well-shown. Other good varieties were Croesus, Nanny Nunn, Jasper, Noblesse, Red Riding Hood, Bacchus, Berrardino and Basilca.

In a large collection, the Donard Nursery Co. had many vases of large Trumpets and giant Incomparabilis varieties. The latter included Farthingale, Dragon, Donax, Market Glory, Croesus, and several good seedlings. The chief of the Trumpet varieties were Gorgeous, Harvest Moon Prospector, Loyalty, King Alfred, Golden King and Water Lily. In addition to those above named, there were attractive vases of various Barrii, Leedsii and double varieties.

The chief feature of the collection of Mr. J. L. Richardson was several vases of Glorious, a lovely Poetaz variety which bears two and sometimes three large, orange-cupped flowers on each stem. Lady Moore, which has a small Picotee-edged corona, was also particularly attractive. The large Trumpet varieties included many very good seedlings, as well as some named sorts. Amongst the many Barrii varieties were Firetail, Ruby, Dragon and Dorosis.

In a small collection, Messrs. Cartwright and Goodwin had various seedlings and vases of Killarney, Hamlet, Phantasy, Magog and King Alfred of the large Trumpets. They also staged some vases of Barrii, Leedsii and Double varieties. Messrs. Dobbie and Co. staged three vases of Duddington, a large, rich yellow Trumpet Daffodil.

Beersheba, White Sister and Tenedos, three nearly pure white Trumpet Daffodils, were included in his small collection by Mr. G. L. Wilson. Fairy Circle, which has a flat corona with a narrow margin of orange colour, Fortunei an Incomparabilis with a yellow perianth and wide, orange corona, and Hymettus of the same type and with a deep primrose-edged corona, were very beautiful.

The West Bulb Fields Co. had bowls and vases of many decorative varieties. Mr. G. W. Miller included Bath's Flame, Madame de Graaf, Queen of Hearts, Bernardino and Lord Kitchener in his collection of Narcissi. Messrs. Hewitts, Ltd., had vases of Sunrise, King Alfred, Bernardino, Bath's Flame and Sir Francis Drake.

In a representative collection, Messrs. Stewart and Son, Ltd., had good vases of Tresserve, King Alfred, Brilliancy, Lucifer, Van Waveren's Giant, Primrose Phoenix, Admiration and Soliel d'Or.

Obituary.

W. S. Black.—We regret to record the death of Mr. W. S. Black, of Messrs. James Carter and Co., Raynes Park, which took place on Friday, the 8th inst., after an operation. Mr. Black, who was fifty-four years of age, was apprenticed in the gardens at Haddo House, Aberdeen, the seat of the Earl of Aberdeen. After serving at Haddo House, he went to Broxmouth Park, Dunbar, and subsequently held appointments at Hendersyde Park, Kelso; Scone Palace, Perth; and Boldre Grange, Lymington. Mr. Black joined the firm of Messrs. Carter's in 1911, and he had been serving with them up to the time of his death. The funeral took place on the 12th inst., at Wimbledon Cemetery.

George Brotherston.—The death of Mr. George Brotherston, Breckenbrough Hall, Thirsk, will be sincerely regretted by his many gardening friends in that district, where he was much respected and esteemed. A native of Kelso, he was a nephew of the late Mr. R. P. Brotherston and also of Mr. James Douglas, both so well known to readers of *The Gardeners' Chronicle.* He worthily upheld the reputation of the family name as a skilful gardener, being especially keen on Carnations, perpetuals and border varieties being his favourities. The Apricot Francis Samuelson was one of his raising, and named after his employer, whom he has served faithfully for well over thirty years. A first-class cultivator of fruit and flowers, and of a kindly, social disposition, ever ready with advice to help his amateur and professional brethren, his passing away will be deeply felt. The respect he was held in was largely in evidence at his funeral in the little village of Danby Wiske, where much sympathy is felt for his widow and family.

Samuel Neil.—Mr. Samuel Neil, for fifty-seven years a florist in Dorchester, Massachusetts, U.S.A., died on March 23. The deceased was a native of Cornwall, England, and had worked in the Channel Isles, at Kew and Messrs. J. Veitch and Sons' nurseries previous to settling in America. He was seventy-seven years of age and left two daughters and four sons: all of the latter have followed their father's business.

Leon-Louis Gentilhomme.—We very greatly regret to hear of the untimely death, at the early age of just fifty-three, of M. L.-L. Gentilhomme, general treasurer of the Federation of French Horticultural Syndicates. He specialised in the growing of Heaths, but he took an active interest in all aspects of French horticulture, and was one of the first members of the Federation. He was a municipal councillor of Vincennes, and Officer of the Mérité Agricole.

Karl Kotte.—We greatly regret to learn of the death of a well-known German nurseryman, Karl Kotte, of South Berlin, who passed away recently in his seventy-fourth year. In his earlier years he became celebrated for the cultivation of large-flowered Chrysanthemums, Roses and fruit trees.

Sandu Aldea.—Rumanian horticulture has sustained another heavy blow in the recent death of M. Sandu Aldea, the Principal of the Agricultural School at Herestrau. Following so soon after the deaths of MM. Stefanescu and Haseganu (see March 19, p. 203), this latest misfortune seems almost too heavy to be borne. It is all the more tragic since a measure is even now before the Roumanian Parliament to raise the school to the status of an Agronimic Faculty, and so set a seal on the pioneer work done by the zealous and indefatigable men who have done so much for Roumanian agriculture and horticulture.

ANSWERS TO CORRESPONDENTS.

Gardener's Notice.—*B. H.* Notice to quit and to terminate employment must be clear and unambiguous. The words quoted in your letter are not sufficient notice for these purposes, and do not operate to determine the employment or the tenancy.

Names of Plants.—*L. H.* Ornithogalum longibracteatum. *W. M. S.* Camellia reticulata. *G. G.* Pieris floribunda. *E. C.* Petasites (syn. Tussilago) fragrans. *X. L.* 1 and 2, Saxifrages of the Burseriana group, but specimens too small for correct identification; 3, Gaultheria procumbens. *Ignoramus.* Daphne Laureola. *P. E. D.* Begonia polyantha. *Dud.* Eleagnus pungens aureo-picta. *R. E.* 1, Cyclamen repandum; 2, Scilla bifolia; 3, Chionodoxa Luciliae. *D.* 1, Cydonia japonica var. Aurora; 2, Asparagus virgatus that has been dipped in aniline dye, and after the ends of the growths have been smeared with gum, they have been dipped in kibbled Rice dyed pink. *Woodcote.* Tillandsia Lindenii.

Palms with Pale Foliage.—*Fernhurst.* When Palms have thoroughly well filled their pots with roots, they should receive frequent applications of weak liquid manure, with an occasional alternative application of a weak solution of nitrate of soda. Such applications will ensure a better green colour in the foliage, as the light colouring is due to semi-starvation.

Tulips Diseased. *W. F.* The Tulips are affected by the "Botrytis" blight, which is caused by the fungus, Botrytis Tulipae. An excellent account of this disease is given by Dr. E. F. Hopkins in *Memoir* 45 of the Cornell University Agricultural Experiment Station. The disease has probably been introduced with the bulbs. Since the fungus forms resting masses of spawn (sclerotia), Tulips should not be grown again in the same soil, though other bulbs may be planted.

Communications Received.—W. H. C., Thanks for 2/6 for R.G.O.F. Box.—A. C. W.—V. B.—C. O.—G. H.—Woolaston.—G. S.—J. R.—K. W.—C. O.—A. P.—C. E.—Sir W. E. W.—H. H. C.—W. A.—R. G.

MARKETS.

COVENT GARDEN, Tuesday, April 12th, 1927.

Plants in Pots, etc.: Average Wholesale Prices

(All 48's except where otherwise stated).

	s. d.	s. d.
Adiantum cuneatum per doz.	10 0	12 0
—elegans	10 0	15 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus	12 0	18 0
—Sprengeri	12 0	18 0
Aspidistra, green	36 0	60 0
Asplenium, doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Azaleas, various, 48's, each	4 6	7 6
— — 60's, per doz.	21 0	24 0
Boronia megastigma, 48's, per doz.	36 0	48 0
Cacti, per tray —12's, 15's	5 0	7 0
Cinerarias, 48's, per doz.	12 0	15 0
Cyclamens, 48's, per doz.	18 0	21 0
Crotons, doz.	30 0	45 0
Cyrtomium	10 0	25 0
Daffodils, 48's, per doz.	9 0	12 0
Erica melanthera, 48's, per doz.	24 0	30 0
—60's ,,	12 0	15 0
—72's ,,	8 0	9 0
Genistas, 48's, per doz.	21 0	24 0

	s. d.	s. d.
Heliotropes, 48's, per doz.	15 0	18 0
Hyacinths, 48's, 3's, per doz.	15 0	18 0
—60's, per doz.	10 0	15 0
Hydrangeas, pink, 48's, per doz.	24 0	36 0
—blue, 48's, per doz.	30 0	36 0
—white, 48's, per doz.	24 0	30 0
—larger sizes, each	4 0	5 0
Marguerites, 48's, per doz.	21 0	24 0
Mignonette, 48's, per doz.	18 0	21 0
Nephrolepis in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	30 0	48 0
—60's	15 0	18 0
Pteris, in variety	10 0	15 0
—large, 60's	5 0	6 0
—small	4 0	5 0
—72's, per tray of 15's	2 6	3 0
Roses, Polyanthas, 48's, per doz.	18 0	24 0
Spiraea, white, 48's, per doz.	21 0	24 0
—pink, 48's, per doz.	27 0	30 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun	10 0	12 0
cuneatum, per doz. bun.	8 0	10 0
Anemone fulgens, per doz.	3 0	4 0
Asparagus plumosus, per bun., long trails, 6's	2 0	2 6
med. sprays	2 0	3 0
short ,,	0 9	1 3
—Sprengeri, bun. long sprays	2 0	2 6
med. ,,	1 6	2 0
short ,,	0 6	0 9
Azalea, white, per doz. bun.	5 0	6 0
Camellias, 12's, 18's, per box	2 0	2 6
Carnations per doz. blooms	3 0	4 0
Croton leaves, per doz.	1 9	2 6
Daffodils, per doz. bunch—		
—King Alfred	5 0	6 0
—Sir Watkin	2 6	3 0
—Victoria	2 6	3 0
—Emperor	3 0	3 6
—Double Van Sion	3 0	3 6
Fern, French, per doz. bun.	10 0	12 0
Forget-me-not, per doz. bun.	6 0	9 0
Freesia, white, per doz. bun.	3 0	4 0
French Flowers—		
—Anemones, mixed, doz. bun.	5 0	6 0
—Myrtle, green, per doz. bun.	1 6	2 0
—Ranunculus—		
—double scarlet	4 0	5 0
—Violets, Parma, per bun.	2 6	3 0
—Stock, double white, per doz. bun.	3 0	3 6
Heather, white, per doz. bun.	6 0	9 0
Iris, Spanish, per doz. bloom—		
— blue	2 0	3 0
— yellow	2 6	3 0
— mauve	2 0	2 6
—white	2 6	3 0
Lilac, white, per doz. stems	4 0	8 0
—mauve, per doz. sprays	5 0	6 0

	s. d.	s. d.
Lilium longiflorum, long, per doz.	4 6	5 0
—short, doz. blooms	3 0	3 6
Lily-of-the-Valley, per doz. bun.	24 0	30 0
Narcissus, per doz. bunch—		
—Grand Primo	2 0	2 6
—ornatus	2 6	5 0
—Elvira	5 0	6 0
—Grand Monarque,	3 0	3 6
—Cornish White	2 0	2 6
—Horace	4 0	5 0
—Barrii	3 0	3 6
—Lucifer	3 6	4 0
—White Lady	2 6	3 0
Orchids, per doz.		
—Cattleyas	24 0	36 0
—Cypripediums	6 0	8 0
Primroses, per doz. bun.	1 6	2 6
Richardias (Arums), per doz. blooms	8 0	10 0
Roses, per doz. blooms—		
—Columbia	5 0	6 0
—Richmond	3 0	5 0
—Madame Butterfly	4 0	6 0
—Golden Ophelia	4 0	5 0
—Mrs. Aaron Ward	2 6	3 0
Smilax, per doz. trails	6 0	7 0
Star of Bethlehem (Allium), per doz. bun.	2 6	3 0
Sweet Peas, in variety	9 0	18 0
Tulips, per doz.		
—single white	24 0	30 0
— — yellow	24 0	30 0
— — scarlet	18 0	24 0
— — pink	21 0	24 0
—Murillo	15 0	18 0
—Couronne d'Or	24 0	30 0
—Prince of Austria	21 0	24 0
—Darwin, red,	21 0	24 0
— — pink	24 0	27 0
— — mauve	21 0	24 0
— double—		
—Lucretia	24 0	27 0
—Tea Rose	18 0	24 0
Violets, per doz. bun.	3 0	4 0

REMARKS.—White blooms will be in great demand this week-end for the Easter festivities, Richardias (Arums) and Lilium longiflorum may advance in price, but supplies at present are fairly good and there is not likely to be any particular shortage. Similar remarks apply to Carnations and Roses. The weather conditions have checked the supply of Daffodils somewhat, and Emperor is the most prominent and mostly recommended variety. Of Tulips, White Swan and White Hawk should be sufficient for requirements; Scarlet sorts may be the shortest amongst the coloured varieties. Narcissus ornatus, Horace and other special varieties from home growers are a trifle short at present, but fairly large supplies are expected from the Channel Islands together with some outdoor white Tulips from Guernsey. Dutch white Lilac is now practically finished for this season. Single Violets have also finished. Amongst foliage, Smilax is a very short line. Amongst the French Flowers anything really good is gradually becoming short in supply; Double White Stock is fairly good but Star (Allium) may finish this week. The season is also getting well advanced for Anemones; Yellow Marguerites, Marigolds, Carnations and Gypsophila arrive in fairly good condition. It is difficult, indeed impossible, to give correct quotations of prices this week.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, English—		
—Newton Wonder	8 0	18 0
Apples, New Zealand—		
—Cox's	30 0	32 6
—Worcester	15 0	17 0
—Dunn's	16 0	18 6
Apples, Virginian Albemarle	33 0	35 0
—Oregon Newtown	—	15 0
—Washington Winesap	12 0	14 0
—Nova Scotian—		
—Spy	16 0	22 0
—Baldwin	16 0	22 0
—Nonpareil	18 0	22 0
—Ben Davis	16 0	20 0
British Columbian—		
—Delicious	—	15 0
—Newtown	14 0	16 0
Bananas	17 0	25 0
Brazils, per cwt.	—	72 0
Grape fruit—per case		
—Blue Goose	25 0	40 0
—Jamaica	20 0	25 0
—Honduras	20 6	25 0
Grapes, South African, per case		
—Gros Colmar	10 0	15 0
—Hannepoot, red and white	8 0	12 0
—Waltham Cross	8 0	15 0
—Molinera	10 0	12 0
—Rosaki	8 0	12 0
—Barbarossa	10 0	12 0
—Raison Blanc	8 0	10 0
—Lady Downes	10 0	12 0

	s. d.	s. d.
Grapes, Australian, ½-bushel boxes—		
—Colmar	20 0	22 6
—Wortley Hall	—	20 0
—Black Malaga	—	18 0
—Tokay	16 0	17 0
—Santa Paula	16 0	18 0
Lemons, Messina Boxes	10 0	18 0
—Naples, per case	20-0	26 0
Oranges, per case—		
—Jaffa, per case	21 0	22 0
—Californian Navel	—	30 0
—Denia	18 0	30 0
—Murcia	17 0	25 0
Pears, South African, per box—		
—Beurré Bosc	10 0	12 0
—Louise Bonne of Jersey	8 0	12 0
—Beurré Diel	5 0	6 0
Pines, case	18 0	30 0
Plums, per box—		
—Kelsey	5 0	9 0
Strawberries (forced)—		
—special, per lb.	12 0	20 0
—best, per lb.	7 0	8 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus—		
—Cavaillon	2 6	3 0
—Special Lauris	3 0	4 0
—Best ,,	3 0	3 6
Beans, Forced—		
—Special	1 6	2 0
Beans, Madeira—		
—Finest	3 0	6 0
Beets, per cwt.	5 0	6 0
Belgian Chicory, per lb	—	0 4
Cabbage, per doz.	2 0	2 6
Carrots, per ½-bag	4 0	6 0
Cauliflowers—		
—English, per crate	4 0	7 0
—St. Malo, crate	3 0	5 0
Celery, fan	2 0	2 6
Cucumbers, doz.	5 0	8 0
—Flats, 3, 3½, 4 doz.	16 0	20 0
French Endive, per doz.	—	3 0
Leeks, per doz.	2 0	2 6
Lettuce, round, per doz.	1 0	2 6
—long	4 0	6 0

	s. d.	s. d.
Mint, forced, per doz.	4 0	7 0
Mushrooms		
—cups	2 0	2 6
—Broilers	1 3	1 9
Onions—		
Valencia	11 0	12 0
—Egyptian	—	13 0
Parsnips, per cwt.	4 6	5 6
Potatos—		
King Edward—		
ton	£9/10	£10
—others, ton	£6	£7 10
Potatos, New—		
—Guernsey	0 8	0 10
—Canaries, case	8 0	18 0
Radishes, per doz.	1 6	3 0
Rhubarb, forced, per doz.	1 3	1 9
—natural	4 0	5 0
Savoys, per tally	8 0	12 0
Seakale, per punnet	1 6	2 0
Tomatos—		
—English, per lb	2 6	3 6
—Canary Island	16 0	18 0
Turnips, per cwt.	4 0	5 0

REMARKS.—The demand has been fairly active during the week, the Easter trade having been quite up to expectations. Pears, Plums and Grapes from South Africa have been popular and sold very well at slightly improved prices. The first Australian Apples of the season have arrived and sold fairly well. Grapes from Australia also are selling freely. There are still Apples from the United States and Canada available, the best of which sell well. A good demand prevails for the best Oranges from Spain, but inferior grades are difficult to move at a price shippers would consider satisfactory. Although very late in the season there are still some English Apples available, and in spite of the competition of imported Apples, they sell very well indeed. English Tomatos come along slowly and with more sun the quantities would be much heavier. Cucumbers are a steady trade and will continue so until after the Easter holiday. Mushrooms are more plentiful although prices are only a shade lower. French Beans continue to sell well. Hothouse Marrows also sell freely. Forced Potatos are easier in price, Spanish New Potatos being responsible for the lower quotation. Hothouse Grapes, mainly from Belgium, are selling well. Strawberries are not plentiful and prices remain prohibitive for the slender purse. Salads are not so much inquired for as is usual during holiday week. The green Vegetable section reports a slightly improved demand. The demand for old Potatos is still good for best grades.

GLASGOW.

The tone of the cut flower market was rather better last week, when prices reflected a slight recovery from the low levels previously recorded. Daffodils were in plentiful supply owing to the large quantities arriving daily from Guernsey. Golden Spur sold from 1/- to 1/6 per dozen bunches; ornatus, 1/- to 2/-; Sir Watkin, 1/3 to 1/8; Emperor and Victoria, 1/6 to 2/-, and King Alfred, 2/6 to 3/6. Tulips continued cheap, Clara Butt being worth 4d. to 8d. (6's), Bartigon, Haarlem, William Copland and Couronne d'Or, 8d. to 10d.; Prince of Austria, 8d. to 1/-; Lucretia and Mm. Kreelage, 9d. to 1/-; Murillo, 6d. to 8d.; and William Saunders, 1/2 to 1/6 (12's). Prices of blue Irises ranged from 2/- to 4/- per dozen, and yellow from 1/6 to 2/6. Carnations realised 2/6 to 4/- per dozen; pink Roses, 5/- to 6/-; red Roses, 2/- to 4/-; Wallflowers, 1/- to 1/6; Anemones, 1/- to 1/6; Hyacinths, 6d. to 10d. per bunch; Lily-of-the-Valley, 2/- to 2/6; Lilac, 1/- to 1/6; Lilium longiflorum (Harrissii), 6/-; and Richardias (Arums), 4/- to 7/-. Marguerites and Spiraeas made 1/6 to 2/- per pot, and Dahlias, Daisies and Sweet Williams, 1/3 to 2/- per box.

Apart from a further decline in the prices of Oranges, dealings in the fruit market were without special features. Jaffa Oranges, 180's and 240's, were valued at 17/- to 19/-; 144's, 14/- to 17/-; Valencia Oranges, 300's, 16/- to 23/6; 240's, 17/- to 24/-; 360's, 8/6 to 14/-; 420's, 20/- to 26/-; and 420's, extra large, 35/-. Prices of Apples also moved in favour of buyers. Winesaps, ex. fancy, being 12/6 per case, Newtown, 11/6 to 15/-; Baldwin, 16/- to 18/- per barrel, and Ben Davis, No. 1, 22/-, and No. 2, 18/-. Prices of Grape Fruit fluctuated between 22/- and 26/-. Melons were obtainable at 1/3 to 1/6 each. Cape fruits were slow to move at 5/- to 7/6 for Grapes, and 4/6 to 6/ for Plums. Teneriffe Tomatos of first quality averaged 22/- to 26/- per bundle, and other grades made 10/- to 18/-.

In the vegetable section, Cucumbers realised 6/- to 7/- per dozen; Cauliflowers, 3/-; Lettuces, 2/- per crate; Radishes, 2/- per dozen bunches; Endive, 2/6 to 3/-; Spanish Potatos, 2d. to 2½d. per lb.; and Teneriffe Potatos 15/- per case.

TRADE NOTE.

READERS requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning *The Gardeners' Chronicle*.

THE WEATHER IN MARCH.

NO warmer March than the one recently experienced is on record since the Southport Observatory was established some fifty-six years ago; and, indeed, the month was very nearly as warm as a normal April. The high temperature, however, was largely compressed into one week, extending from the 17th to the 23rd. Winds from all the colder points of the compass were unusually infrequent, the total hours of wind from the semi-circle extending from north-west, through north, to east, being considerably less than half the average. Except around the middle of the month, atmospheric pressure was extremely low. The rainfall was fairly heavy, but the duration of sunshine normal. Somewhat curiously, the wettest hours of the twenty-four were from 8 a.m. to 11 a.m., and the sunniest, from 10 a.m. to 12 noon. The mean temperature was 45½°, or nearly 4° above the average. Rain fell on 19 days, or an excess of four; and the total quantity was 3·52 inches, or 1·29 inch above the normal. There were, however, over 119 hours of sunshine, or the full average number. Ground frost occurred on eight nights; but, in the screen the temperature was continuously above 32°. A gale from the westward pervailed for 12 hours on the 2nd to 3rd. Hail fell on the 3rd and 11th. February's deficiency of ozone disappeared. *Joseph Baxendell, The Fernley Observatory, Southport.*

SCHEDULE RECEIVED.

WOLVERHAMPTON FLORAL FETE.—Thirty-fifth show to be held on Tuesday, Wednesday and Thursday, July 12, 13 and 14.—Secretary, Mr. G. W. A. Martin, 46, Queen Street, Wolverhampton.

CATALOGUES RECEIVED.

A. E. DAVIES AND CO., 164, Lever Street, Bath Street, City Road, E.C.1.—Bamboo garden canes, poles, rods, etc.

C. ELLIOTT, LTD., Six Hills Nursery, Stevenage, Herts.—Alpine and herbaceous plants.

CLIBRANS, LTD., Altrincham.—Dahlias.

THE
Gardeners' Chronicle
No. 2104.—*SATURDAY, APRIL* 23, 1927.

CONTENTS.

Aesculus californica ... 284
Alpine garden—
  Douglasia laevigata 282
  Portulaca grandiflora 283
  Ranunculus nyssanus 283
  The Satin Flower ... 282
Azalea exhibition in Paris 277
Azalea, leaf scorch of... 286
Books, notices of—
  Chrysanthemums ... 286
  Journal of the R.H.S. Gardens Club ... 278
Botanic gardens for Canada 278
Cardiff fruit and Potato trade 279
Crown gall and cancer 284
Dunstan, Professor M. J. R., retirement of 278
Florists' flowers—
  Single Chrysanthemums 282
Fruit garden, the market 288
Fruit register—
  Pear Verulam ... 288
" Gardeners' Chronicle" seventy-five years ago 279
Guarantees and warranties 285
Haberlea rhodopensis 283
Hardy flower border—
  Staking herbaceous plants 282
  Veratrum 282
Indoor plants—
  Luculia gratissima... 282
Lamb's Cottage ... 278
MacIntyre, Mr. D. ... 278
Magnolia Campbellii flowering at Kew ... 277
Markets and fairs ... 277
Obituary—
  Alderman, H. ... 293
  Paterson, W. ... 293
  Sargent, Prof. C. S. 293
Orchid notes and gleanings—
  Cattleyas and their allies 282
Parks and gardens, public 286
Plants, on raising new garden 277
Potatos, experiment with seed 290
Potatos, virus diseases of 277
Prunus yedoensis ... 285
Salvia pseudo-coccinea 290
Societies—
  British Carnation ... 291
  Falmouth Spring Show 291
  Instow Spring Show 292
  Kilmarnock Spring Show 291
  Moray and Nairn Foresters'... ... 291
  Paisley Florists' ... 290
  Royal Caledonian Horticultural ... 290
  Royal Horticultural of Ireland ... 290
  Spalding Bulb Growers 292
  Tamar Valley Commercial Show ... 292
  United Horticultural Benefit and Provident 292
Vegetable garden—
  Seakale 289
  Some uncommon vegetables worth growing 289
Viola species 283
Week's work, the ... 280

ILLUSTRATIONS.

Azalea, leaf scorch of 286–287
Haberlea rhodopensis, Stormonth's var., 281 ; H. rhodopensis var. virginalis 283
MacIntyre, Mr. D., portrait of 278
Odontoglossum Muralis, Gerrish's variety 279
Prunus yedoensis 285
Seakale Sutton's Ivory White 289

SUPPLEMENT PLATE.

Aesculus californica in Stanage Park.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 48·8°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 20, 10 a.m. Bar. 30·4. Temp. 57°. Weather, Sunny.

On Raising New Garden Plants. THE psychologist—and we are all psychologists now-a-day—may, if cynical, find cause for enquiry why, if gardening be in truth the purest of human pleasures, it should also be one of the most popular. If he were a gardener, however, the answer to the question would be self-evident; for as we all know, the popularity of gardening as a pastime depends first on its precariousness and second, on the diversity of interests which it offers. In most amateur hands gardening has the attributes of a game of chance, and it offers such a vast variety of occupation and interest that the catholic-minded person is apt to prove but a poor practitioner because he is constantly being lured away from one unfinished job to undertake another. The varied interests are so many Sirens whose soft voices beguile all but the most hardened of garden Ulysses. Of the manifold interests which even the smallest garden possesses, one of the most fascinating is the raising of new varieties of plants. True, it is a game of chance, but one success in a thousand attempts is ample compensation to anyone who is more concerned with pleasure than with profit. The technique of hybridisation is of the simplest, and may be acquired by anyone possessed of a little patience and the smallest modicum of botanical knowledge. The history of British horticulture shows that amateur gardeners have ably and successfully seconded the efforts of the professional hybridists in their attempts to add yet further to the range of variety among garden plants. There are, of course, not a few gardeners—and they are among the best—who are purists in these matters. They would cry, " a plague on both your houses "—both amateur and professional hybridisers. At times all gardeners are purists, especially when they try to devise or undertake the nomenclature of some much mixed up genus of plant—the Rose, for example. But, after all, life has to be explored in all its possibilities, and gardens without hybrids would be as perfectly dull as persons without peccadillos. Of past hybridisers who have left their mark on garden history and on gardens, this country has had its full share in Dean Herbert and Charles Knight, and in more recent times, the Rev. F. D. Horner, famous as a breeder of Auriculas and Tulips; Henry Eckford, who evolved exquisitely beautiful Sweet Peas from a few poorly-coloured, weak-growing varieties; James Douglas, no less famous as a raiser of border and florists' Carnations, and one of the greatest fanciers and raisers of Auriculas; James Kelway, the raiser of so many beautiful Gladioli and Pyrethrums; Richard Dean who, as it were, painted the Primrose; G. Engleheart, whose name is unforgettable when Daffodils are in bloom; and Wolley Dod, whose adept hands helped to make so many hardy garden plants more shapely and more brilliant. These and many other amateur and professional hybridists have done so much that it might seem as though the possibilities of Nature have been exhausted. This, however, is far from being the case, and there are certainly as many hybrid fish in the sea as ever came out of it. In recent years, for example, much has been done with border Carnations, but it is certain that there is much more still to do. Lilies also offer a fair field for the exploration of the hybridiser, albeit that it is doubtful whether fairer forms than those of Nature's making are to be obtained by confounding the substance of different species. But the hybridiser need not confine his work to form and colour. There are plant diseases to be overcome, and the discovery of resistant races is by far the best means of keeping diseases from garden plants. He who could keep a Rose unspotted from the world—banishing black spot from the Rose garden—by breeding resistant races, scented, strong and beautiful as well, would be hailed by everyone—even by the purists—as a benefactor worthy of a wreath of Laurel and of Roses. In this work of hybridisation there is room for all: for the Mendelian who works according to plan and the unscientific " heathen " who works according to chance. The odds of victory are even, and the " heathen " in his blindness of Mendelism is just as likely to succeed, if he possesses the eye for the points of plants, as the geneticist who follows the rules of his game. Yet in the long run, plant breeding will become an exact science and hybridists will all be Mendelians—all working according to plan. For although the results which are now achieved are precarious, the operations of heredity are certain. Some day they will be understood, and then mankind may be able to direct his own evolutionary course, steering surely through the as yet uncharted seas of progress. And so everyone who achieves anything in hybridisation, even of Primroses or of Carnations, may be adding something to the edifice of knowledge of heredity on the building of which the future of mankind depends.

Magnolia Campbellii Flowering at Kew.—The flowering of a tree, or to be quite correct a large bush, of this beautiful Magnolia in the open air at Kew is an event of more than ordinary interest. There are numbers of well-known specimens in the milder parts of the country—at Leonardslee and South Lodge, Horsham, and at Abbotsbury, to name only three—which flower freely in most seasons, but this is the first time visitors to Kew have been able to see fully developed blooms out-of-doors. Two years ago there were several buds on the tree, but frosts destroyed them. The tree in question was one of four small plants obtained from Calcutta in 1904. It is a large, upright-growing bush having no distinct leader, and is twenty-five feet in height. The average rate of growth is about one foot a year. In 1913 it was nine feet high. In its native home of the Sikkim Himalaya, at 8,000 to 10,000 feet altitude, there are records of trees occasionally up to one hundred and fifty feet high. The flowers, produced before the leaves, are large, pleasingly fragrant, and of a rich deep rose colour.

Markets and Fairs.—His Majesty's Stationery Office has published the first part of a report on markets and fairs in England and Wales. The Linlithgow Committee, after surveying the whole marketing field stated: " We have been struck by the lack of readily available information regarding the markets of the country. This appears to be due to the fact that there is no general body or legislation on the subject; many markets owe their origin to early charters, others are controlled by local authorities under private Acts of Parliament, while others have been established under the general powers of the Public Health and other Acts. As a result, there is no Government Department which is concerned to consider the relation of local markets to the food supply of the country, their influence on prices, or their general suitability from the point of view either of the consumer or the producer." The Ministry of Agriculture has undertaken a survey of the agricultural markets and fairs in England and Wales in furtherance of this observation of the Committee. The first part, just issued, contains a general review, giving the historical and legal foundations of markets and fairs, and also reviews briefly the statutes and regulations affecting their administration and control.

Azalea Exhibition in Paris.—The annual exhibition of Azaleas which is held in Paris in the Municipal Conservatory at Boulogne-sur-Seine, was opened this year on April 15. It will remain open until May 1, and is sure to attract very large numbers of visitors. The fee for admission is one franc on Sundays and holidays, and two francs on other days, the opening day excepted, when five francs were charged.

Virus Diseases of Potatos.—A very interesting and instructive account of the research work in virus diseases of Potatos, conducted by Dr. Paul A. Murphy and Mr. R. McKay, at the Albert Agricultural College, Glasnevin, is given by Mr. H. Southwell in the April issue of the *Journal* of the Ministry of Agriculture. Mr. Southwell considers that the results of the many years research work on virus diseases point to the fact that the main determinants of productivity of " seed " Potatos are very closely proportional to the amount of serious virus diseases present in the planted " seed," and that the place of origin in itself is no reliable guarantee of health and productivity. As the diseases are spread by insects, the factors governing the production of healthy "seed" in any district are (1) the extent to which Potatos are grown in the district; (2) the introduction of diseased "seed"; (3) the rotation; and (4) the presence of "volunteer" plants. Where Potato growing is congested the area may become, and often is, virus infected. It is no coincidence that the "seed" from the Lowlands of Scotland, from Ayrshire, yields little if any better crop in Lincolnshire than does Lincolnshire "once-grown" (Class 1) "seed," while the best quality "seed" is obtained from those areas in Scotland where Potato growing is not so congested, and where the grower has at least a four years' rotation of crops.

Formal and Decorative Gardens at Chelsea Show.—The Council of the Royal Horticultural Society has decided that the judging of the gardens at the Chelsea Show will take place in the following manner:—The scale of points used for formal gardens in 1926 will be used in 1927 for formal and decorative gardens other than rock gardens, *i.e.* (maximum points): Design, 60; Execution, 20; Plants, 20; Total, 100. In judging rock gardens and formal and decorative gardens, special weight will be given to exhibits in which the design and plants are such as would be practical and permanent for ordinary gardens.

Iris Society's Show.—Specialists and other lovers of Irises are already looking forward with pleasurable anticipation to the first exhibition of the Iris Society. This will be held at the Royal Horticultural Society's Hall, Vincent Square, Westminster, on Thursday, June 2 (a printer's error in the *R.H.S. Gardeners' Diary* has made it the Irish Society's show!). The schedule of seventeen classes is now ready and may be had on application to the Hon. Secretary, Mr. G. N. Bunyard, Bower Mount Road, Maidstone. In addition to cash prizes and medals arranged for the several classes, the Veitch Memorial Medal offered by the Council of the Royal Horticultural Society will be awarded to the best exhibit of Irises grown by an amateur; and the Silver Medal of the American Iris Society will, at the discretion of the judges, be awarded to an amateur exhibit. The Dykes Memorial Medal is offered for the best new seedling Iris not in commerce shown before the Iris Society or the Royal Horticultural Society during the months of May and June. Non-competitive exhibits of Irises or of pictures of Irises will be welcomed by the Society, but space must be applied for by May 25.

Retirement of Professor M. J. R. Dunstan.—Professor M. J. R. Dunstan, Principal of the Royal Agricultural College, Cirencester, is retiring at the close of the present session. In 1902, he succeeded Sir Daniel Hall as principal of the South-Eastern Agricultural College, Wye, and remained there for twenty years, during which time the activities of the College were greatly extended and the number of students rose from fifty to over two hundred. In 1922, Professor Dunstan was appointed Principal of the College at Cirencester, and in addition he is Professor of Agriculture in the University of Bristol.

Lamb's Cottage.—The cottage known as Buttonsnap, West Hill Green, Hertfordshire, has been presented to the Royal Society of Arts in connection with the Society's scheme for the Preservation of Ancient Cottages, by Mrs. M. Grey, Coles, Buntingford. The cottage is referred to in Lamb's Essay, *My First Play*, and is said to contain four rooms with the entrance door so low that those passing through it are compelled to bend their heads.

Burley Old.—Lovers of Sylvan beauty will learn with pleasure that the destruction which threatened the beautiful glades of Burley Old, in the New Forest, has been averted. The matter came before the House of Lords, and though some attempt was made to justify the cutting down of old trees, a promise was made by Lord Clinton to the effect that there would be no further vandalism, and any future wood-felling would be carried out only after consultation with a committee representing the National Trust, the Commons Preservation Society, the verderers and others interested in maintaining the beauty of all parts of that great national heritage, the New Forest. Lord Clinton, representing the Forestry Commission, confessed that in such cases as this "the care of the picturesque overrides all other considerations."

Mr. Donald MacIntyre.—Mr. D. MacIntyre is in charge of the great estate of the Damon family, Moanalua, at Honolulu. His father was a very noted Scotch gardener, long in the service of Sir Charles Tennant, The Glen, Innerleithen, Peeblesshire, and a frequent and very successful exhibitor at the shows of the Royal Caledonian Horticultural Society at Edinburgh twenty-five years ago. He retired in 1907 and went to live with his son in Honolulu, where he died in 1918. After serving at The Glen under his father, Mr. Donald MacIntyre went to Drumlanrig, under Mr. David Thompson. He left Drumlanrig in 1892 in order to attend the four-year course of instruction for gardeners and foresters that the late Professor Sir Isaac Bayley-Balfour inaugurated in connection with Edinburgh University; while attending the lectures in connection with that course he was employed at the Botanic Garden, in charge of the Orchid collection. In 1897, Professor Balfour sent Mr. MacIntyre out to Honolulu to take charge of the Damon Estate of Moanalua. Moanalua is an estate some nine thousand acres in extent, and it was bequeathed to the late Mr. S. M. Damon by Berenice Pauahi, a chieftainess who was the last of her line. Mr. Damon developed the estate, sunk wells and installed a system of irrigation. Moanalua has now 2,300 acres of forest, 3,500 acres of pasture land, 400 acres under Pineapples, 2,000 acres of Sugar cane, 441 acres of fish ponds, 116 acres of Rice and Bananas, 40 acres of garden, and a golf course of 76 acres. Orchids, excepting Odontoglossums, for which the climate is too warm, are grown extensively, flowering and ornamental trees are a feature of the garden and pleasure grounds, while many tropical and some subtropical fruits are grown in quantity. Moanalua is thrown open to the public, and both visitors to Honolulu and residents take full advantage of the privilege. An account of this wonderful estate appeared on page 92 of *The Gardeners' Chronicle* of July 31, 1926.

MR. DONALD MACINTYRE.

Export Duty on French Vegetables.—By a decree dated the 14th of March, the export duty of ten per cent. ad valorem on fresh vegetables from France, which was imposed by the French Government in July, 1926, has been replaced by a duty of two francs per 100 kilos weight. It is thought that the taxation by weight instead of by value may simplify matters, and avoid disputes between exporters and customs officials; but it appears to be giving rise to some dissatisfaction on the ground that the duty may in some cases work out at a higher rate under the new conditions than under the old.

"Journal of the R.H.S. Gardens Club."—The Volume for 1926 of the *Journal of the R.H.S. Gardens Club* is full of interesting matter on the Wisley Gardens, and although most of the paragraphs are of special interest to present and past members of the R.H.S. Garden staff, both at Wisley and Vincent Square, the *Journal* will be read with interest by gardeners generally. Mr. J. Wilson gives an interesting resumé of Wisley from 1911-1926, covering the period of his association with these famous gardens. Mr. Wilson's account shows that great improvements and additions have been made at Wisley during the past fifteen years. The frontispiece of the *Journal* depicts the beautiful gates erected to the memory of the Rev. W. Wilks. Mr. L. B. Creasey has contributed an interesting article entitled "British Plants in the Rock Garden—Some Observations," from which it will be seen that considerable numbers of native plants are suitable for our rock gardens. In the personal paragraphs the members of the Club are kept in touch with what many of their old Chiswick and Wisley friends are doing, and it is interesting to learn that some of the old students have sought fresh woods and pastures new, for we learn that Mr. P. Jelly is leaving to be a plumber, Mr. A. Barnes has gone into the cabinet-making trade, Mr. H. Shergold has secured an appointment with Messrs. Unwin, printers, and the Rev. F. A. Phillips has been appointed assistant priest at Puttenham; the majority, however, have remained faithful to their calling, and there is a list of appointments covering a wide field, some of the old students and employees becoming head gardeners, some engaged in nurseries, others have joined experimental stations, and forestry institutes, while still others are trying their fortune in the colonies and places abroad.

Repairing the Glasshouses at the Botanic Gardens, Regent's Park.—We learn from the *Quarterly Summary* of the Royal Botanic Society of London that repairs to two of the old glasshouses at Regent's Park have been completed, namely, the Victoria Water Lily House and No. 6, and work on the propagating house in the yard behind the potting shed is now in progress. The sum subscribed by the Fellows for the purpose has already been expended, and the Council is appealing for further donations to repair houses No. 3 and No. 4. The Victoria Regia house was renovated, section by section, and new iron supports fitted inside to strengthen the structure. It was found possible to rebuild the roof without completely dismantling the whole structure. The plants have now been replaced in this house and are expected to provide a fine display in the coming summer.

Botanic Gardens for Canada. — Botanists throughout the world, and especially those of Canada and Great Britain, have long desired the establishment of one or more botanic gardens in the Dominion of Canada. So far, with the exception of a small establishment in connection with the University of British Columbia, Canada does not possess a botanic garden, but there are grounds for hoping that in the near future the missing link will be provided in the chain of botanic gardens throughout the British Empire. Dr. Hill, the Director of Kew, visited Canada in 1926 and discussed with the President of the University of Toronto, Sir Robert Falconer, the possibility and suitability in Toronto of a botanic garden in connection with the School of Botany. This discussion is referred to by Sir R. Falconer in his presidential report for 1925-6 as follows:—"In an annual survey it is only right that mention should be made of the special needs of the University. Of all the departments, Botany is that which has been waiting longest for better equipment. For many years the great need of a botanic garden for this University and Province has been emphasised. In the neighbourhood of Toronto a suitable site may be obtained in which the national treasures can be displayed and their economic possibilities set forth. Recently, the Director of the Royal Botanic Gardens at Kew has visited the city, and once again it has been brought to our attention that such a garden is a necessity for the study of native vegetation, the preservation of native flora, and the promotion in the Dominion of economic developments similar to what has been so effectively done for years by Kew Gardens."

Cardiff Fruit and Potato Trade.—At the Annual Conference of the National Federation of Fruit and Potato Trades' Associations, held in the Cathays Park, Cardiff, on the 29th and 30th ult., Lt.-Col. D. Watts Morgan stated at the annual banquet that fruits and Potatos came second in Cardiff's trade and Cardiff was now almost the largest, if not the largest, centre of these products for Great Britain. The Lord Mayor of Cardiff, Alderman William Grey, J.P., stated that the growth of the fruit trade of Cardiff during the past few years had been very rapid, showing an increase of from fifty to seventy-five per cent. over that of 1913, and more fruit was consumed per head in South Wales than in any other part of the country. Their city was, he said, the first port in the world for the importation of Potatos, and during last year no fewer than 68,622 tons had been dealt with. Arrangements had been made to import Oranges direct from Jaffa, with the result that the public had received a plentiful supply of Jaffa fruit at very moderate rates.

Appointments for the Ensuing Week.—Monday, April 25: Harrogate and District Horticultural Association's meeting. Tuesday, April 26: Royal Horticultural Society's Committees meet (two days); Cornwall Spring Flower Show (two days); Southampton Royal Horticultural Society's show (two days); National Auricula and Primula Society's show (two days), at the Royal Horticultural Hall. Wednesday, April 27: Sheffield Chrysanthemum Society's meeting. Thursday, April 28: Paisley Florists' Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Sikkim Rhododendrons.*—We regret that Mr. Masters should have published his unsuccessful attempt at cultivating these beautiful plants. His statement, by investing their treatment with imaginary difficulties, is calculated to deter many from persevering in their culture, as well as to prevent others from attempting it altogether. The mishaps of which he complains, and which he would have your readers believe are inseparable from any attempt to grow them, have arisen, not from any insurmountable difficulties, naturally arising therefrom, but from some injudicious mode of treatment, of the nature of which we cannot, of course, venture to speak. When the seeds were distributed we, too, were favoured with a full collection of the kinds, and we have not experienced more difficulty in raising, or in cultivating them, than is usually met with in the common kinds under artificial treatment; in fact, we have been highly successful with the whole of the species. Many of our plants are from nine to twelve inches high, with leaves from six to ten inches long, by three or four inches broad; setosum and the other small mountain species, which Mr. Masters believed to "pine for their mountain air and pressure of snow," are growing luxuriantly with us in a damp, close frame; many of the plants are from six to eleven inches high. Every person who has had much experience in raising Rhododendrons and allied plants from seed, must know that very great attention is required, when in their young state; a large amount of moisture, a cool temperature, with shelter from the sun and wind are indispensable; and that if these conditions are not artificially supplied, total failure will often result; and, as before observed, we have not, in our experience with the Sikkim Rhododendrons, found the attendant difficulties greater than with the most ordinary kinds. If a variation of treatment is required it is in the form of richer soil, and a greater amount of moisture during their growing period. The following hints will, perhaps, be found useful to those who possess plants, and who may be desirous of succeeding in their cultivation. Procure some very rich peat; it will be necessary that it should contain a large amount of vegetable matter, and mix with it about one-fifth sand. Place a layer of the compost in a frame, about six inches deep, for the reception of the young plants. They should be planted from three to six inches apart, according to the size they have already attained. Here, during their growing season, they must be kept very damp, saturated, in fact, and well-shaded from the direct action of the sun. Many failures have occurred from exposing them to a hot, dry atmosphere. When they are of sufficient size to place in the open air (which should not be done till they are at least a foot high), August will be the best month to choose for the operation. Of course, they will have been gradually inured to the change before their final removal. Advantage should be taken of a rainy time for planting, and if the weather is afterwards hot and dry, a few boughs should be stuck around them to afford a partial shades They will require a very rich soil, with a moist subsoil, but not such as arises from stagnant water. Where situations are prepared for them, they should be drained from two to two-and-a-half feet deep. It will be of no use placing them in dry borders. Old ponds, drained and filled up, or bogs surface-drained, will be the most suitable place for them. Judging from our own experience, we believe that the greater part of them will be quite hardy. But should some of them not prove so in the midland counties, there are many places in Cornwall, on the western coast of England and Scotland, and in Ireland, enjoying a very humid atmosphere, with very little frost, where they will succeed well. *Standish and Noble, Bagshot. Gard. Chron., April* 24, 1852.

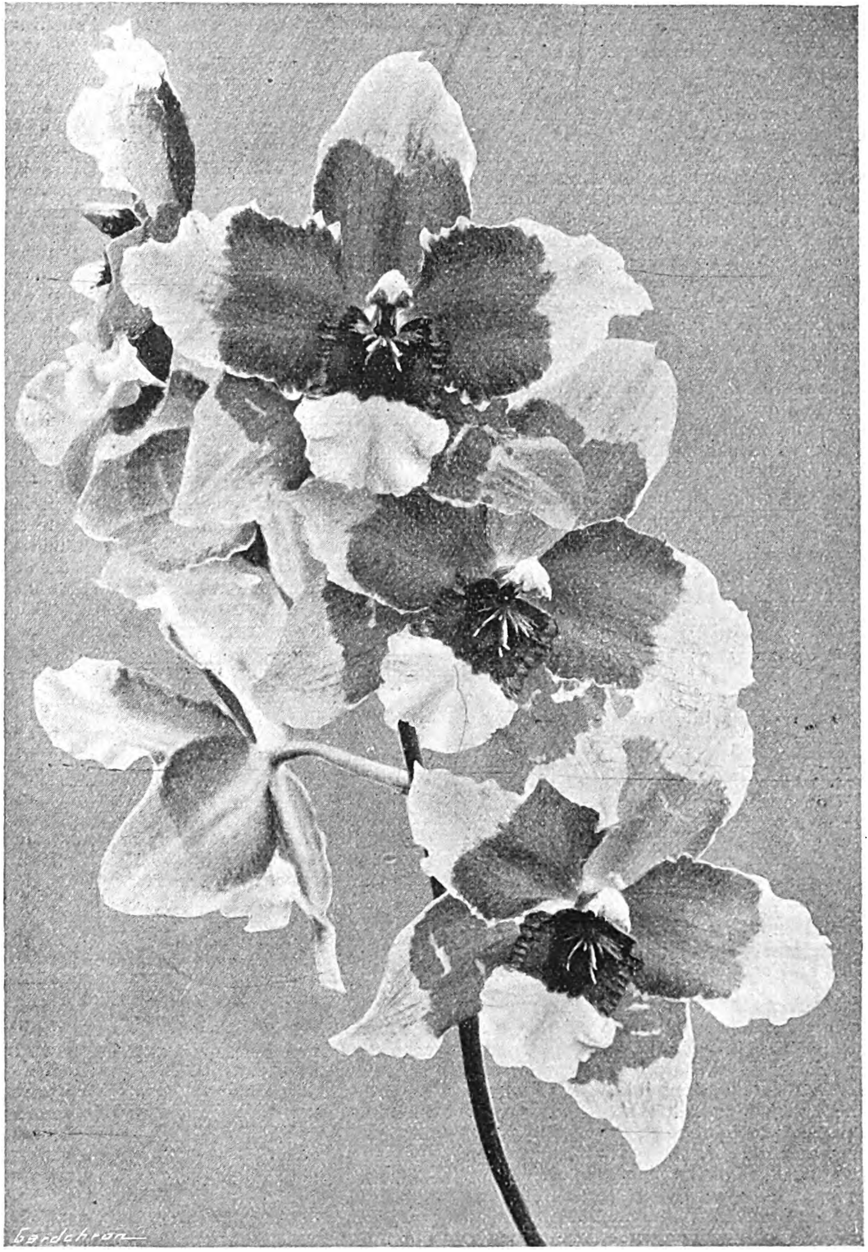


FIG. 135.—ODONTOGLOSSUM MURALIS, GERRISH'S VAR.

R.H.S. Award of Merit, April 5. Flowers red-brown, lilac, chocolate-red and white. Shown by Mr. R. Gerrish, Millfield, Salisbury. (see p. 255).

Publications Received.—*Flora of West Tropical Africa*, by J. Hutchinson and J. M. Dalziel, Vol. 1, Part 1; Crown Agents for the Colonies, 4, Millbank, Westminster, S.W.1; price 8/6.—*The Manuring of Orchards and Fruit Trees*; free on application to the Chilean Nitrate Committee, Friars House, New Broad Street, E.C.2.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon,
Bletchley Park, Bletchley, Bucks.

Cattleyas and Laelio-Cattleyas.—These Orchids need to be repotted at different seasons of the year. Those plants which produced their flowers during the late autumn and winter have enjoyed a considerable period of rest, and show signs of developing new roots. Any plants in need of fresh rooting-material may receive attention, for the present time is the most favourable season for repotting them. C. labiata, C. Percivaliana, C. Trianae, and C. Dowiana are the principal species which will need attention first, to be followed at a later date by C. Schröderae, C. Mossiae and C. Mendelii. The repotting of the later-flowering species, C. gigas and C. Gaskelliana should be deferred until just after they have flowered. The many hybrids include several that produce their flowers during the winter and, like the species mentioned above, start on their new cycle of growth at this season. Vigorous plants that only require potting because they have outgrown their receptacles, should be taken out of the pot carefully, thoroughly cleansed, the old, leafless, pseudo-bulbs removed, the decomposed material carefully picked out, and then be placed in the smallest receptacles that will accommodate them. Plants which show signs of deterioration should be carefully pulled apart and placed in the smallest pots that will hold them. Deterioration of these plants is often caused by the loss of roots from too much or too little water, and I have known many plants deteriorate through being watered with unsuitable water; rain water is the most satisfactory to use.

Potting Cattleyas and Laelio-Cattleyas.—There is a great diversity as regards the rooting behaviour of the different species and members of these large families of Orchids. Some make large, strong roots, whilst others have small and wiry ones; the former are generally strong, robust growers, such as Laelia purpurata and its hybrids, whilst the latter comprise such as Cattleya Dowiana, and plants of a similar nature which are often regarded as difficult to grow. These weaker growers should always be given slightly more drainage, and grown in smaller pots than those of a more robust nature. Strong, healthy specimens, under proper treatment, should not require further repotting for at least two years, hence the necessity of the work and the material being of the best.

Compost.—A suitable compost for these plants consists of equal parts Osmunda fibre and A.1. fibre, to which a small quantity of Sphagnum-moss may be added, all thoroughly cleaned, and used in as rough a state as possible. In a compost of this nature, the plants should be potted firmly, as when potted loosely the compost will soon decay, and with it, the roots, this in most cases being the cause of the plants deteriorating, as they resent decayed rooting material more than any other Orchids. Water should be applied to the new compost with extreme care until the roots are established in it, but frequent dampings between the pots will be of great benefit to the plants. It is also advisable to shade the plants for some little time after repotting them to prevent the foliage losing colour and also the loss of leaves.

Propagating Dendrobiums.—To maintain a healthy stock of these Orchids, it is advisable to propagate the choicest varieties at every opportunity, and this is best accomplished by cutting up the old pseudo-bulbs removed from the plants when repotting them. Dibble the portions in pots of clean silver sand, and place them in a warm propagating frame, where they will soon form growths, which, when making roots, may be placed in small pots, and grown on in the same way as the older plants.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain,
Brocket Hall, Hertfordshire.

Primula sinensis flore pleno.—The old double white Primula is now rarely grown in gardens, although it makes a fine greenhouse subject. The plants are passing out of flower and should be prepared for propagating, as this variety does not produce seeds. Commence by removing the bottom leaves, after which a slit should be made with a sharp knife in an upward direction in each division, and the cut kept from closing by placing a small piece of crock or charcoal in it. The plants should then be packed around with Sphagnum moss or fibrous loam, filling in the centre with leaf-mould and silver sand, to encourage young roots to form. The plants require careful watering at this stage, and shading from bright sunshine. When it is found that the top-dressing is well-filled with roots, divide the plants carefully and pot the portions singly in small receptacles. Those that have formed plenty of roots may be stood on a moist base in a cool house, while those that have not made many roots should be placed in a propagating frame for a few days; guard against damping, for this Primula resents a close atmosphere.

Euphorbia jacquiniaefolia.—Stock plants of this beautiful and useful Euphorbia should now be introduced into heat to develop suitable shoots for making cuttings. Plants that have been treated as previously advised will produce shoots suitable for use as cuttings in a very short time, and when the young growths are about three inches long they may be used for this purpose. They are best taken with a heel of the old wood, and immediately they are severed with a sharp knife they should be placed in an upright position in powdered charcoal to prevent bleeding. The cuttings are best taken early in the morning, before the sun gains too much power, and the receptacles should be prepared in advance in order that the cuttings may not flag in the least degree before inserting them in a sandy, open compost. Root the cuttings in a warm propagating frame. If it is intended to grow them on as large specimens insert three cuttings in a small pot. The plants may then be grown on without any unnecessary disturbance at the roots. This Euphorbia delights in a stove temperature until it is well established in its flowering pot, after which it may be grown in cooler conditions. The roots need careful watering at all times, and they should never be allowed to become excessively dry. Euphorbia pulcherrima (syn. Poinsettia) requires much the same treatment as advised for the above.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P.,
Ford Manor, Lingfield, Surrey.

Frame Melons.—The present is a suitable time to prepare for the growing of Melons in frames, with or without hot-beds. Ripe Melons cannot be produced in frames in less than twelve to fifteen weeks; they should be forthcoming from the end of July to the end of September, which includes the hottest period of the year, plenty of solar-heat and light being essential to success with this crop. Assuming that stable manure and leaves can be used in equal parts, the heap should be turned two or three times and the bed made as recommended in a previous calendar. The most suitable compost for Melons is a somewhat heavy loam mixed with old lime rubble and a little soot to destroy wire-worms, adding a little bone-meal if the loam is of poor quality. In a good compost, and with careful attention, the plants will grow rapidly. A small amount of fresh air should be admitted until a maximum temperature of 85° is reached, and then gradually reduced as the temperature falls. When the frames are closed and contain plenty of atmospheric moisture, the temperature may be allowed to rise to 90°. As the shoots reach the limits of the frames, stop them, to cause laterals to develop, on which fruits will appear at the first joint. When several of the flowers have expanded, pollenate them until sufficient fruits and to spare have set, finally leaving three or four to each plant. By this method and constant pinching of the laterals, the larger leaves will have plenty of room, and sun light and warmth will reach the bed and prevent stagnant conditions in the soil, with the result that canker will not be likely to affect the plants.

Cherries.—The earliest fruits will soon be past the stoning period, but the temperature of the houses must not be allowed to rise too high, 50° to 55° at night, and 65° to 70° by day, with bright sun, being sufficient; maintain a sufficient amount of atmospheric moisture. Keep a close watch for weevils, which will do much damage to both fruits and foliage in a very short time. Black and green aphides are sometimes very troublesome to Cherries under glass, and two or three fumigations between the stoning and colouring periods are advisable; it is not wise to fumigate after the fruits have coloured, as the flavour is liable to be affected by the fumes. Cherries will hang for a long time after they are ripe, provided the atmosphere of the house is kept cool and dry.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford,
Wrotham Park, Barnet, Middlesex.

Strawberries.—Where the soil is naturally well suited to growing Strawberries, excellent crops of fruit may be obtained from the same plants for at least three or four seasons in succession, but if the soil is of a light, hungry nature, resting on a gravelly subsoil, two years is quite long enough to expect satisfactory crops of good-flavoured berries. Plants raised from layers taken from healthy stock in July usually produce good crops the following season, and if planted on a warm border the fruits will be not only large but ripen quite ten days before those fully in the open.

Forced Plants.—Where it is the practice to make new Strawberry plantations by utilising plants that have been forced in pots, the ground, if not already prepared for them, should be got in readiness and the plants put out so soon as they are ready, in deeply worked soil that has been enriched with plenty of manure. Do not retain the plants longer in their pots than is necessary after they have been hardened. Set them two feet apart, but before doing this, soak the balls of soil and roots thoroughly with water. Shake away much of the old soil and plant firmly. In old gardens it is a good plan to work a few handfuls of sweet, well-prepared compost around the roots of each plant.

Vines.—So soon as outdoor vines have made a couple of inches of new growth, all the laterals, with the exception of one or two, should be rubbed off each spur. Select the best placed and most promising shoots for fruiting. As the growth extends and the bunches show, pinch the laterals at about three leaves beyond the bunch. Later, when the berries are well set, reduce the number of bunches, if necessary, leaving the best ones to constitute the crop. The berries should be thinned when very small; as Grapes in the open do not grow very large or ripen early, they should be well-thinned and encouraged to ripen so soon as possible.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord
Wavertree, Horsley Hall, Gresford, N. Wales.

Potatos.—The planting of Potatos should, by this date, be well advanced, though the work may be done with success for a considerable time longer. So soon as the tops of the earlier planted ones are discernible, advantage should be taken of dry weather to well fork the ground, working in at the same time a liberal dressing of soot. All will then be in readiness for earthing up the rows when the haulm is sufficiently advanced for this to be done.

Staking Peas.—When this work is being done care should be taken not to close the sticks together at the tops, an evil which prevents the free branching of the shoots. The grower should allow at least as much space in that position as at the base.

Celery.—So soon as ground becomes vacant, the trenches for this crop should be prepared. Plenty of well-rotted manure, cow manure for preference, should be dug into the bottom of the trench and well mixed with the soil. For a double row of plants the width of the trenches should not be less than eighteen inches, and a distance of six feet should be allowed between the trenches. If slugs or other pests have previously caused trouble, the ground should be dressed with a soil fumigant or sprinkled over with kainit. The ridges between the trenches may be utilised for growing Lettuces, Turnips, or any crop that will mature before it is necessary to use the soil for earthing up the plants. Strong plants, raised early, should now be hardened gradually in readiness for planting in the trenches by about the third week in May.

Cucumbers.—If Cucumber seeds are sown now in small pots and placed on a hot-bed or in a house where a temperature of 60° to 65° is maintained, they will soon germinate and grow quickly into strong plants, suitable for setting out on hot-beds in frames by about the third week in May. At this time growth will soon become rapid, and care should be taken to train the young growths thinly. Pinch the points of the shoots when they are advanced sufficiently, and the laterals at the joint beyond the fruit. Make full use of sun-heat, and treat the plants as advised for those growing in houses. Later in the season good Cucumbers may be grown successfully in frames without the aid of artificial warmth; for instance, in frames in which Potatos have been grown, a mound of rich, loamy soil, to which a little old Mushroom-bed manure is added, will be all that is necessary for a start. Close the frame early with plenty of atmospheric moisture. On cold nights cover the lights with mats.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Snowdrops.—Where it is desired to naturalise Snowdrops to extend the planting, or, in fact, to move them at all, there is no doubt that the best time is when they have finished flowering or just before the foliage dies down; with home-grown stock this is fairly easy. If the plants are purchased, try and secure delivery as soon as possible after they are lifted. Snowdrops succeed best in fairly open woodland, where the soil is loose and free with plenty of humus. They do best in grassy places where the surface is soft and spongy, as opposed to close, lawn-like conditions. They may also be grown in large beds of deciduous shrubs, and also naturalised in the hardy fernery.

Chionodoxas and Scillas.—Chionodoxa Luciliae C. sardensis, Scilla bifolia and S. sibirica are all beautiful, small, blue-flowered bulbous plants that are ideal for naturalising in the rock garden, hardy fernery, under deciduous shrubs, or even in Rose beds, where they make a fine display in early spring. They all increase freely in light, warm soils. In common with all early flowering bulbous plants, they should be planted so soon as possible.

Spring - flowering Bulbs. — Early Tulips, Hyacinths and Narcissi occupying beds required for summer bedding plants should be lifted carefully after they have flowered, and the bulbs laid in a bed of ashes or light soil until the foliage has ripened completely, when they should be lifted and dried off in a suitable store room. Tulips are all too commonly affected with disease, and all affected bulbs, also the soil surrounding them should be removed so soon as the diseased condition is noticed. When lifting the bulbs from the beds a close watch should be kept for diseased bulbs, which should be burned, for once the soil is infected it is useless to try and grow Tulips on the same ground for a number of years, as the resting spores or sclerotia of the fungus will remain dormant in the soil for at least eight years, and a few diseased bulbs will infect the whole bed in the following year.

Evergreen Hedges.—Hedges of Holly and Yew are best planted towards the end of April or beginning of May, just when the plants are starting into growth. The sites should have been well prepared sometime previously; firm planting is very important and the roots should be well-watered if drying winds prevail. Cupressus macrocarpa is often used for an evergreen hedge, but with much trimming it often has a tendency to die in patches. Thuya gigantea makes a very good hedge and is sometimes planted as a large, informal screen, as also is Cupressus Lawsoniana. Prumnopitys elegans makes a beautiful hedge, but I only know of one example of it; its lively green colour is much more cheerful looking than Yew, and I see no reason, if stocks were available, why it should not be generally used for forming hedges. There are many other plants that are neglected for this purpose, Berberis stenophylla and B. Darwinii, for example; there is a fine hedge of the former surrounding the water garden at Kew; such a hedge should not be trimmed with the shears, but simply the longest shoots cut out after flowering.

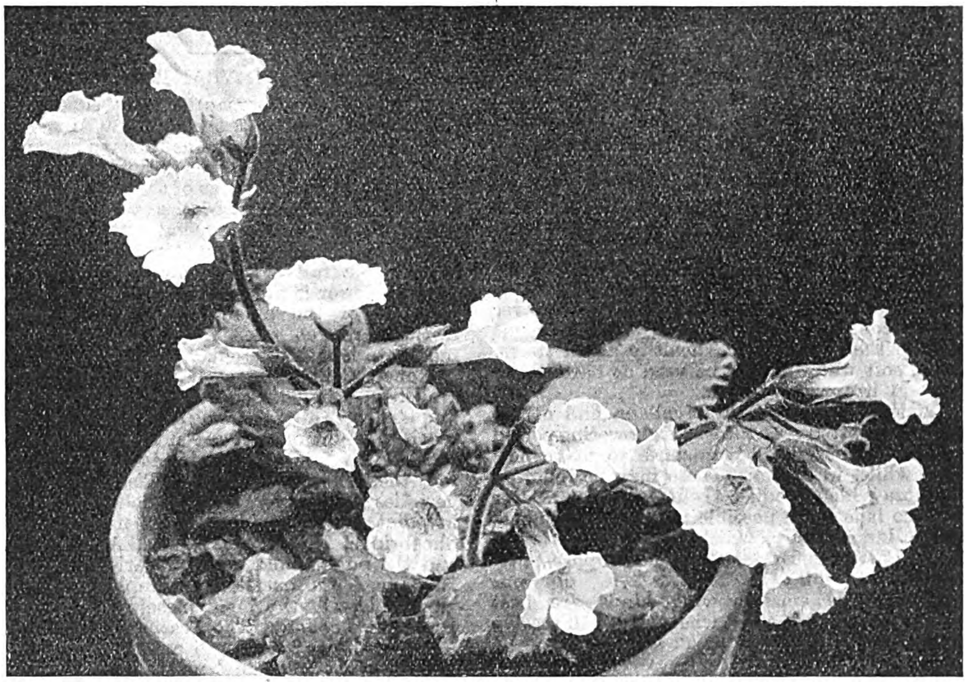


FIG. 136.—HABERLEA RHODOPENSIS, STORMONTH'S VAR.
(see p. 283).

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Grafting Fruit Trees.—Although the grafting of fruit trees is not much practised in private gardens, there are occasions when it might be done with advantage. Trees which have proved unsuitable for the particular district, if headed back in November, may now be further shortened and re-grafted with varieties which can be depended on to succeed. In districts where canker is prevalent on Apples, select varieties that are not very susceptible to the disease; excellent results have been obtained where badly cankered trees have been headed back and re-grafted with Bramley's Seedling. This strong-growing variety seems not only to escape attacks of canker, but also by the transfusion of its sap throughout the cankered stock, completely eradicates the last traces of the disease, and a series of experiments are now being made by inserting one or two grafts of this variety on various trees without heading them back, to see what effect it may have under these conditions.

Broccoli.—The main sowing of Broccoli seed should now be made in ground that is not too rich, as sturdy growth from start to finish is of primary importance with this crop. With this object in view, the seeds should be sown thinly and the seed-bed made firm by treading. When the seedlings are of a suitable size, they should either be transplanted about three inches apart, firming the ground as before, or thinned in the seed-bed to allow plenty of room for the seedlings to develop. Plants raised in this manner have very decided advantages over those which are allowed to become drawn and attenuated by close contact with each other in the seedling stage. Select varieties which in former years have done well and these should include one of the autumn varieties to follow the latest batch of Autumn Giant Cauliflower, with a selection of the winter and early spring sorts, as well as those which are in use during April and May; the earliest batch of spring Cauliflowers will be ready in June, and so complete the cycle.

Disbudding Peach and Nectarine Trees.—The earliest trees having been attended to, the later ones should be disbudded and the fruits reduced in numbers. In doing this work, which in reality is a form of summer-pruning, a certain amount of knowledge of the different varieties is necessary, as well as a close observation as to the health and vigour of the trees, for while some kinds produce an enormous number of surplus side-shoots, which must be reduced to enable those left to mature properly, other varieties produce these side-shoots very sparingly, and consequently require very much less disbudding. The work should be spread over a period, and if the most awkwardly-placed shoots are removed first, selection of the remaining shoots may be made later, and finally, at a third operation, only those shoots left which are required to furnish the tree with fruiting wood for next year. When this system is followed, it will be found that little or no check has been given to the trees and their growth will continue uninterruptedly. A similar method is recommended for reducing the immature fruits, finally leaving only those which, by their positions on the trees, are likely to get their full share of sunshine, and not be interfered with by crossing wires or branches, as fruits thus damaged are of little value.

Sowing Hardy Annuals.—The spring sowing of hardy annuals should be made now, and where beds or borders are set aside for them, remarkable results may be obtained at a small outlay. Sow sparsely, and thin the seedlings when they are about three inches high.

ORCHID NOTES AND GLEANINGS.

CATTLEYAS AND THEIR ALLIES.

In addition to species this large group of Orchids contains many hybrids of diverse parentage, but nearly all succeed under practically the same conditions, so that for cultural purposes they may be placed together.

There is much diversity of size, form and colour, some being large plants and others small; some produce thick, fleshy roots, and others thin ones; and each has an individuality of its own which must be considered. Whilst the strong-rooting kinds may be placed in large receptacles, the weaker rooting sorts should be placed in small ones.

Plants which produced their flowers during the late autumn and winter months are best repotted so soon as new roots are observed to be pushing from the base of the last made pseudo-bulb. Fortunately, these delightful plants flower at different periods so they may be enjoyed practically the whole year round.

A clean, open material, made up of equal parts of Osmunda fibre and A.1. fibre, from which all the fine, earthy particles have been removed, with a small quantity of live Sphagnum-moss answers their requirements; and the plants should be potted firmly, as this compost will hold water much in the same way as a sponge if placed loosely in the receptacles. To cultivators of this large family I venture to offer a word of caution against the continual change of material used as a rooting medium. Drastic changes are not beneficial, and experiments should be made on a limited number of plants at a time. The chief points in the cultivation of Cattleyas and their allies are, firstly, an even temperature, with a sweet, buoyant atmosphere; secondly, a clean rooting medium; and, thirdly, water, when growing, whenever they become dry at the roots, with sufficient to keep them plump and healthy at all times. Clean, soft water should be used as hard water may do irreparable harm.

Cattleya Trianae, C. Percivaliana and others may be repotted soon after their flowering period is past, as many will commence to make new roots whilst in bloom. These may be followed by those which produce their flowers at a later date, so it is quite possible that some members of this large family, which includes Cattleyas. Laelio-Cattleyas, Brasso-Cattleyas, Sophro-Cattleyas, etc., will need potting at different periods. The small-growing kinds are best grown in pans suspended where they will receive all the light available. *J. T. Barker.*

INDOOR PLANTS.

LUCULIA GRATISSIMA.

Luculia gratissima is included amongst those greenhouse plants which are regarded by the ordinary gardener as difficult to propagate; nevertheless, with proper treatment and management, cuttings will root readily, and, moreover, the propagator, if successful, will be amply repaid for his trouble.

Luculia gratissima is one of the gems of the greenhouse. Its fragrance is superb, while its rose-coloured flowers show to great effect against the green, oval foliage. Both this species and L. Pinceana, which has white flowers, are useful pot plants.

In some text books the following advice is given:—"Take young shoots from half-ripened wood in June and dibble them in the ground under a bell-glass." Some growers may find this a suitable method of propagation, but I am inclined to think that if growers adopt the following plan they will secure a larger percentage of rooted cuttings than if they are inserted in June. During the spring, old plants growing in a nursery bed in the open should be potted and brought into a house having an intermediate temperature and started into growth.

With careful watering and management, the young shoots soon begin to appear. These, when four or five inches long, should be taken off near a joint or with a heel. Only cuttings of medium thickness should be selected, as these do not damp off so readily as thicker ones. Place the cuttings in small pots filled with sharp sand. Plunge the pots in a propagating case where a gentle bottom-heat is available, and keep the case closed until the cuttings have rooted, then admit a little air each day, gradually increasing the amount until the cuttings are ready for shifting into three-inch pots, in a compost formed of sweet loam and peat in equal parts, with a handful or so of sharp sand added. Do not pot too firmly, and after potting remove the plants to the staging in the house in which they were propagated.

From that stage onward, the plants will need no extra care, beyond the ordinary cultural treatment given to plants of this category. On no account should the growth be hindered for want of root-room, therefore, shift the plants into larger pots when necessary. During the winter the plants should be pruned severely, according to the shape required. In this way fine, bushy growth will be obtained. Plants treated in this manner grow to a large size and are useful for either pot cultivation or planting out in a border. *G. B., Matlock.*

FLORISTS' FLOWERS.

SINGLE CHRYSANTHEMUMS.

No type of Chrysanthemum is enjoying greater popularity at the present time than the Single. Great improvements have been made with this type of the flower during recent years, both in the colour and size of the flowers. Some raisers have raised varieties with somewhat heavy flowers having several rows of florets, which lessens their value for light decorative work. For fairly large vases, however, this type of flower is quite suitable, and the lasting qualities of the blooms are good, especially if they are cut when fresh and with only a moderate length of stem.

Robert Collins, Mrs. W. J. Godfrey, Mrs. Hancock, Phyllis Cooper and Molly Godfrey and its sports are all strong growers, which often reach a height of over seven feet, and a greenhouse with a fair amount of headroom is required for their accommodation. There are other varieties of dwarfer habit which lose nothing in point of size and quality of flower; Hilda Shoebridge, Pink Beauty, Mrs. A. Robertson, and the popular old crimson variety, Sandown Radiance, are excellent examples. The last variety is still the most pleasing shade of its particular colour. The variety Miss Joyce Moore, though very large and much easier to cultivate, is, in many points, inferior to it.

Most of the modern Singles seem to have a tendency to flower later than the older type, and are not at their best until November is well advanced. I grow all the Single sorts without any stopping or pinching, but disbud the larger-flowering ones severely. For the decoration of dwelling-rooms, a vase arranged lightly with a moderate amount of first-class blooms is far superior to one which is crammed with sprays of inferior quality.

I find that stopping the plants results in blooms which incurve slightly at the tips, thus losing much of their natural and graceful appearance. This applies particularly to Robert Collins and Molly Godfrey and its sports. The same result was not noticed in the case of Mrs. W. J. Godfrey and Mrs. Hancock, which have narrower and less numerous florets.

These strong-growing Singles should be propagated before the end of December and subsequently given the same generous treatment as the Japanese varieties which are being grown to produce large exhibition blooms, the aim in the case of Singles being to limit the plants to about a dozen blooms each.

The staking of the taller varieties should be done carefully, more than one stake being required for their support. A strand of wire strained between two stout posts will also be necessary to secure the entire line against boisterous winds, as an open position is desirable during the time the plants are growing outside, and strong westerly winds are often troublesome if a hedge or similar screen is not available to break the full force of the gale.

The following is a useful selection of standard varieties, embracing a wide range of colour: Robert Collins, Susan, Molly Godfrey, Bronze Molly, Fantasy, Catriona, Pink Beauty, Phyllis Cooper, Mrs. W. J. Godfrey, Mrs. Hancock, Miss Joyce Moore, Sandown Radiance, Mrs. A. Robertson, Hilda Shoebridge, Portia, Margaret Davies and Mrs. Palmer. Lady Mary Davey is smaller, but the colour is a very vivid shade of terra-cotta, and this variety produces plenty of flowers which are especially suited to dinner table decoration if they are partially disbudded. Sweet Auburn, too, is useful if grown in the same way. *Charles Hodgson, Acton Place Gardens, Acton, Sudbury, Suffolk.*

HARDY FLOWER BORDER.

VERATRUM.

Veratrum comprises a genus of hardy herbaceous perennials that deserve more attention and are worthy of inclusion in herbaceous borders, etc., on account of their handsome, broad-ribbed, ovate foliage. They are also suitable for grouping in the centre of beds or for fringing a shrubbery border, their handsome foliage producing a sub-tropical effect.

The plants grow from four feet to six feet tall. the shoots terminating in dense branching spikes of flowers, forming a large, pyramidal panicle from July to September.

V. album, the False White Hellebore, produces prettily ribbed foliage and greenish-white flowers; V. nigrum has blackish-purple flowers, whilst V. viride is similar to V. album, except that the flowers are green. The propagation of these plants should be done in autumn or early spring. *W. L.*

STAKING HERBACEOUS PLANTS.

The staking of herbaceous plants is too often badly done, the shoots being tied up in bundles, or else neglected until they have tumbled down. Many plants, such as Michaelmas Daisies and Heleniums, are easily staked if the shoots are thinned to four or five, and each secured singly to a neat stake; the resulting display will be much better than otherwise, as each growth will have room to branch and develop to its full extent.

Many plants are difficult to stake in the orthodox way; this applies to many slender-growing plants which should be supported with branches, placed in position early, thus allowing the plants to grow through and over them. With very little attention, these plants will arrange themselves in a pleasing and natural manner. If this method was more generally adopted, much time and trouble would be saved in the staking and tying up of herbaceous plants. *C.*

ALPINE GARDEN.

THE SATIN FLOWER.

The Sisyrinchiums have been flowering exceedingly well since early March. The pretty, satiny, purplish-pink flowers of S. grandiflorum are extremely effective, while the snow-whiteness of S. grandiflorum album is very beautiful.

The foliage is narrow, grass-like, while the dainty, bell-shaped-nodding flowers are of a brilliant, transparency, and add charm to the plant when massed in the rock garden.

Sisyrinchiums should be planted in light, sandy, peaty, moist soil, in partially-shaded situations. *W. Logan.*

DOUGLASIA LAEVIGATA.

This dainty species is not nearly so well-known as its congener, D. vitaliana; it is a dense- and low-growing plant which, in spring, is studded with small, rose-pink flowers. The latter are abundantly produced and borne on erect peduncles about one inch long; the leaves are linear or oblong-lanceolate in shape.

It is a choice plant for a sunny ledge and grows well in gritty, well-drained soil. It is also happily placed and very pretty when grown in a pan in the alpine house. An American species, it is a native of the Oregon Mountains.

PORTULACA GRANDIFLORA.

Sunny ledges of the rock garden will prove ideal positions for this brilliant little annual; arid conditions are essential to its welfare, and a gritty, rather poor soil will meet its requirements.

Plants may be raised in warmth and transplanted, but I find it better to sow the seeds in their permanent stations; from early to mid-May being a suitable time for sowing.

I once saw these plants draping the edge of a low terrace wall and growing in granite with gravel and stone beneath; it was a very hot season and the plants grew and flowered exceedingly well. The flowers are variously and brilliantly coloured, three or four together, terminal, surrounded by whorls of crowded leaves; the latter are scattered, cylindrical, somewhat succulent and acute.

This brilliant little plant does not exceed a few inches in height; it was introduced from Brazil in 1827. There are double-flowered varieties. *Ralph E. Arnold.*

RANUNCULUS NYSSANUS.

Of the series of Ranunculus in commerce, R. nyssanus is not at all common, although it is a cheap plant to purchase. It first came under my notice a few years before the war, when I procured a specimen and retained it until my removal to my present garden. Although I am not prepared to endorse the high opinion held of this Crowfoot by the late Mr. Reginald Farrer, R. nyssanus is an interesting and useful little plant.

It is excellent for covering a considerable amount of space rapidly by means of its runners, but, as these develop above ground, it may be easily kept in bounds. When out of flower it presents a mass of hairy foliage, and above the leaves, in summer, rise stems from six to twelve inches high, according to the conditions under which the plant is grown, bearing bright yellow flowers. The latter are of good size, and it is a little unfortunate that the period of blooming is not extended. This Crowfoot is easy of culture, and may be grown on rockwork or on the level ground, and in either place will flower well. It may also be grown in either heavy or light soils, and an additional advantage is that it will flourish in sun or shade. I am not aware if seeds can be obtained from the trade, but plants are available, and there is still time to plant them this season. *S. Arnott.*

VIOLA SPECIES.

It is a pleasure to see Col. E. Enever Todd's notes on Viola species, the result of endless research, that are appearing in *The Gardeners' Chronicle*. They will be most helpful to the many who are interested in this important race with its many beautiful species and endless varieties.

During a visit to the South of Spain in February last, in which most of my time was spent in wandering off the beaten track to see the various flowering plants that occur in that region early in the year, one of the most interesting plants that I had the pleasure of seeing was Viola arborescens. This was abundant in a very limited area near Malaga. Well-established plants were lovely little clumps smothered with white, lavender-flushed, good-sized flowers. Some of these Violas were like little, round bushes, covered with flowers and with stocky, woody stems, well on to half-an-inch thick. These must have been very old specimens, as the younger ones were not so compact. The plants were on the shady slopes in dry, stony positions, being partially protected from the fierce sun of that region even at this early period of the year. Others were also frequently in the shelter of larger plants. Many of the plants had seeds, of which I collected a few ripe or ripening. There were also numbers of seedlings springing up around some of the more sheltered plants.

In reference to the seeds, which I had on a table in my bed-room to dry, for some time I could not realise what the "clicking" noise was in the dead of night, until I discovered that it was the Viola seeds ripening and scattering the seeds abroad in the interesting way that Viola seeds have of doing, some of the less desirable species producing self-sown seedlings only too frequently in the garden.

Viola elegantula (bosniaca), with me, is only really good for one season's flowering; the plants do survive the winter frequently, but the flowers in the following season are not nearly so fine. Cutting back and preventing seeding do not succeed with this species in the same way as this treatment does with many of the Violas. All the larger-flowered Violas seem to have a tendency to flower themselves to death; even the garden varieties, if allowed to seed. There is no doubt that many of the Violas growing in warm, fully-exposed positions in hot climates are biennial, producing seeds very freely and a continuity of plants therefrom.

A Viola elegantula hybrid that I received from a friend last year (a long, large-flowered plant) looks much stronger after the winter, but it has not flowered yet. *T. Ashton Lofthouse, Linthorpe, Middlesborough.*

HABERLEA RHODOPENSIS.

Haberlea rhodopensis is one of very few species of the large family Gesneriaceae which may be grown with success in the open. It occurs wild in one district only, on the southern slopes of the Balkan mountains, whence it was introduced in 1880 by Leichtlin, and flowered the following year at Kew.

Haberlea resembles Ramondia in habit, forming flattish rosettes of dark green, hairy, toothed leaves, from among which rise numerous slender stalks, each bearing a terminal cluster of flowers.

The number of flowers on a plant has increased under cultivation, and seedlings show variation in size and colour of the flowers. The colour is usually bright lilac or pale purple, with numerous rich yellow spots in the throat. H. r. Ferdinandi-Coburgi, H. r. Austini and H. r. Stormonth's var. (Fig. 136) are varieties of good colour, and mention may also be made of a free-flowering white one of great beauty, known as var. virginalis (Fig. 137).

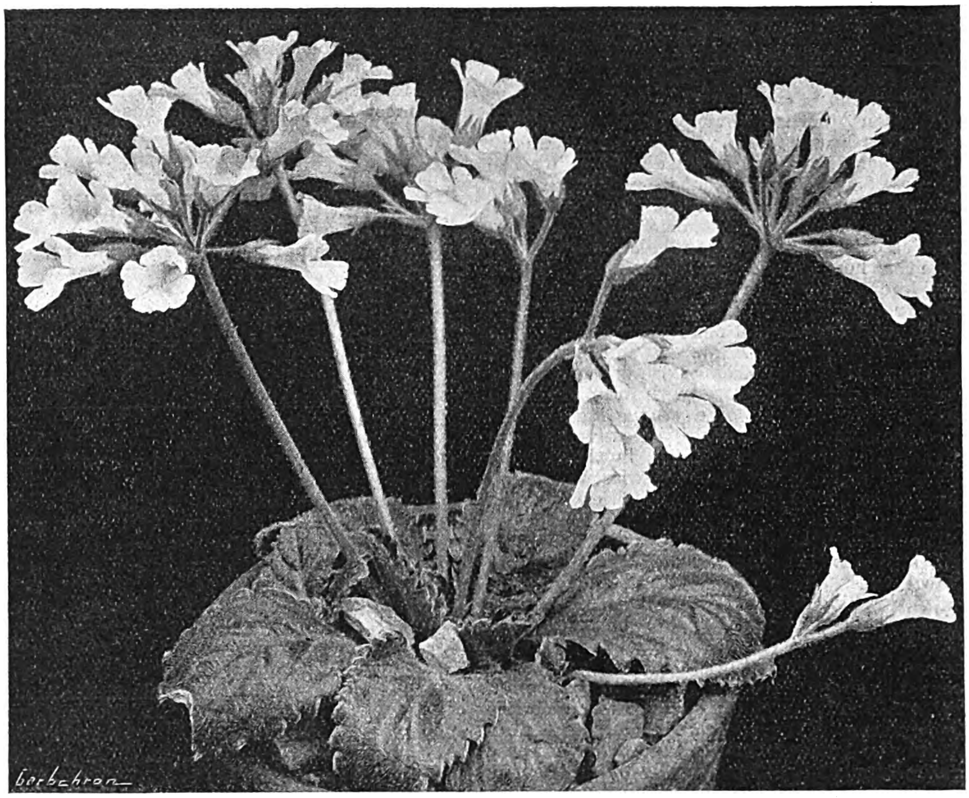


FIG. 137.—HABERLEA RHODOPENSIS VAR. VIRGINALIS.

Culture and propagation of these charming plants are not matters of great difficulty, but care and patience are required to grow them satisfactorily. They flourish in cool, shaded nooks, which afford them shelter from scorching sun and drenching rain.

They appreciate a deep root-run in soil which is well-drained, while at the same time it is capable of retaining a fair amount of moisture during spells of drought. A compost of two parts of loam, one part of leaf-mould and a little grit is recommended. Planting may be done in autumn or spring. The crevices in which the plants are to make their home should be deep and roomy, and when the plants are in position the soil should be well worked in about their roots.

Stocks of Haberleas are best increased by raising seedlings. The seeds are minute and should be sown in early spring in well-drained pots of fine, sandy soil. Sow very thinly and only just cover the seeds with soil. Cover each pot with a sheet of glass and stand it in a close, shaded frame. After pricking them out, the young plants should be grown on in a frame, care being taken that they are not exposed to long periods of strong sunlight or allowed to become dry at the roots. Old plants which have become too crowded may with advantage be divided and replanted in fresh soil.

In conclusion, it must not be overlooked that Haberleas are extremely effective when grown as specimen pot plants. They are delightful when seen flowering in March and April in a cool and airy alpine house, together with some of the choicer Saxifragas, Primulas and other plants worthy of similar treatment. *N. K. G.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Local News. *–Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER, *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

CROWN GALL AND CANCER.

MOST horticulturists are familiar with the large swellings which occur on the stems and roots of various plants and which are popularly known as "Crown Galls." Mr. Erwin Smith, the veteran American plant pathologist, who has studied the disease for many years, has repeatedly stated that the appearances displayed by the galls are of such a nature that we may reasonably speak of them as plant cancers. From the fact that for some time no organism could be definitely associated with these galls, an opinion arose that here was a type of growth quite unlike that known elsewhere in the plant kingdom; consequently, the analogy drawn between them and animal cancer has received a considerable amount of support. A great stumbling block, however, is the radically different cellular structure and manner of growth in animals and plants; the absence of a circulating system, of a central nervous and digestive system in plants are differences which, in the opinion of many, make it extremely unwise to lay too much stress on apparent similarities between the two diseases.

The Italian botanist, F. Cavara, in 1895, first succeeded in isolating an organism from Crown Gall, and twelve years later Erwin Smith, working in collaboration with Townsend, proved conclusively that this bacterium, to which they gave the name Bacterium tumefaciens, was the causal organism. A fact which seemed to support the idea of a close connection with malignant tumours is that it is impossible to demonstrate the presence of the bacterium within the tumour cells, although the disease can be brought about artificially by inoculating from cultures. In his later work, Erwin Smith has drawn more and more analogies between Crown Gall and human cancer. From a purely scientific point of view it would be extremely interesting, and in some ways most useful, if the two diseases could be proved to have anything in common. On the other hand, if the relation between the two were anything like so close as Blumenthal, a German bacteriologist, has suggested, the growing of plants would carry a risk which some would not care to face.

As everyone knows, we are still ignorant of the causal organism of cancer, or, indeed, whether or not the disease is purely physiological. Evidence on the whole points to parasitism, and probably cancer problems at the present time attract more workers than does any other biological or medical investigation. Blumenthal and his collaborators, working at Berlin, recently isolated from the margins of human tumours, a bacterium which gives cultural reactions almost identical with those of Bacterium tumefaciens, and at least one of the forms proved capable of reproducing Crown Gall in Sunflowers and tumours in healthy animals.

A disturbing coincidence then occurred. Robinson and Walkden, working at Manchester on Crown Gall on the garden Marguerite, found that Bacterium tumefaciens was present on the rough exterior of the galls, thus explaining why Erwin Smith failed to demonstrate the bacterium within the tissues.

The two diseases, plant and animal, suddenly and unexpectedly assumed an apparent identity. The interest of medical men was aroused, and as a consequence, Professor W. Robinson was invited to give a paper before the Section of Tropical Diseases and Parasitology of the Royal Society of Medicine on April 6, with the title "Some Features of Crown Gall in Plants in reference to comparison with Cancer." In this he showed conclusively that the far-reaching comparisons drawn by Erwin Smith between gall and cancer are extremely questionable. Most, probably all, the features regarded as showing special resemblance to cancerous growth follow as a normal consequence of the infection of growing plant parts, and resulting secondary galls are in no way similar to metastases. The only thing they have in common is a typical proliferation of the cells. A critical consideration of Blumenthal's suggestion of a possible connection between the causal agent in Crown Gall and malignant tumours proves that it is in no way conclusive. It would be out of place here to consider the various details, but Professor Robinson's lecture will go far towards preventing medical men from considering Crown Gall in plants as anything more than an instructive *plant* disease, and should allay all fears of those interested in their garden regarding the chance of becoming infected with a dire malady when engaged in the most healthy of occupations and pastimes. *J. R.*

AESCULUS CALIFORNICA.

(See Supplementary Illustration).

THE specimen depicted in the Supplementary Illustration presented with this issue represents a tree of the above name growing in the park at Stanage, at an altitude of some 800 feet above sea-level; it is from a photograph by Mr. Heyworth, Knighton.

The tree, which was grafted, I take it, upon the Horse Chestnut (Aesculus Hippocastanum), was planted out, to the best of my belief, sometime in the early sixties of the last century. Our predecessors in those days were always tutored in the doctrine that the best way to perpetuate these little, smooth-fruited, prettily-flowered Horse Chestnut trees, was by budding or grafting, and that this was a rule that collectors should subscribe to and truly observe. My predecessors evidently conformed to the advice of the day. Whether they planted our tree on the most appropriate site is a question for the amiable discussion of an outspoken family circle, or the ever ready criticism of visitors. Not that I resent remarks in such directions; anything is better than a dull apathy amid the glories of countryside scenes. Besides, one need never act on unconvincing suggestions. Our tree, I am afraid, is located too near a giant Oak, which rather overtops and over-shadows it. These trees want a place rather among their equals than the mighty ones, isolated, or in a grove, not in a clump or cluster.

The tree depicted measures nearly fifty feet in height and four feet in girth. Elwes, and Henry's best tree, growing in the Isle of Wight, measured thirty feet in height, but that must have been eighteen years or so ago. We reckoned ours at that time as something between thirty-five feet and forty feet. I make no claims to championship for our example, nor boast of its departure from the canons of proportion as laid down in the estimate of authorities, which, so far, seems to rate the height in its native country at forty feet, and perhaps a little less in ours. On the contrary, I render apology for its apparently wilful noncomformity to established rules, and the discipline of procedure, but at the same time plead that there is no hard and fast obligation to submit to any uniform height standard in tree life, such as was once required of polo ponies at Hurlingham; variations in these directions will occur in the best regulated families.

There was, in ancient history, but one paramount Queen and Goddess of Beauty, called Aphrodite or Venus; one statue of her at Florence, called the Venus de Medici, represents her as five feet four inches in height, while to instance other portrayals of her, in the Venus of Cnidus or the Venus of Miletus, she is evidently evolved from a far taller and more stately model. Yet they are all one and the same personality, though represented by differently-sized statues. So let our tree be forgiven if it has exceeded the statutory limit.

Aesculus californica belongs to a genus that once was, and sometimes is now, called Pavia. These Pavias were of the same order as our well-known Horse Chestnuts, at one time called Aesculaceae and now Sapindaceae. They boast many aliases. Pavia was a name given to them in honour of one Peter Paw, a name that if you are not careful in the writing of might easily be described as Peter Pan. Another name bestowed is that of Buckeye, for the rather complicated reason that the so-called hilum, or scar of the seed, when abstracted from the husk, is apt to glare at you rather fixedly—so some imaginative minds have suggested—like a ship's dead eye. In some circles, anyone narrating experiences of this sort would render themselves open to obvious suspicion! The last of the names I can find attributed to this section is a very self-explaining one, and that is the smooth-fruited Horse Chestnut tree.

While the full-grown Horse Chestnuts are well-known by the spiny husks of their fruits, called in scientific circles, echinata, a word that finds ready admission to rural intelligence, when we translate it, as "with bristles like a hedgehog," the smaller Pavias present an outer circle of husk unarmed with anything in the nature of prickly and spiny appendages.

To revert and comment upon a few habits and varieties of the lesser Aesculus or Pavias. We read in older works that there were three aboriginal species of this once-called Pavia genus, of which the red-flowering (P. rubra), and the yellow-flowering (P. flava), must most certainly stand out as independent candidates for individual claims to original honours. If colour of flower constituted claim to primitive fame, we must look down the list of aspirants for the third place among those species that are clad in purple colours. There was once a shrub or small tree, ten feet high at most, called Pavia discolor, that was credited with bearing purple flowers. But P. discolor, as a name, among the more modern authorities, seems to have been relegated to the ranks of the forgotten, or submerged under a newer nomenclature. Then there is another with the more up-to-date name of A. purpurascens, a cross between A. octandra and A. Pavia (once called P. rubra), mentioned by Bean. This tree also "sports the purple." The old family name of Pavia seems to be dying a natural death and dropping into abeyance. I take it, this arises from the fact that the Aesculus family so freely cross-fertilise that the old line drawn between the bristle-coated Horse Chestnuts and the smooth-fruited Buckeyes, is gradually wearing away. The half and half colour of the flowers seems to prove this, and so the usual confusion, as in composite-bred animals and mixed races, is bound to arise and puzzle pursuers in the cult of exact definitions.

Our tree, which, by the way, has been identified by Kew and other authorities, shows the typical long, tapering, acuminate leaflets in its palmate arrangement, and that constitutes one of the hall marks of its identity. Perhaps in some cases the terminal leaflet of our tree exceeds in length the measurements assigned to it by some. In other respects it seems to conform fairly well in colour of flower, white with pink tinge, for instance, with what is expected of it.

To write of these little Horse Chestnuts as scenic ornaments, and where to suggest planting them, would perhaps be a presumptuous undertaking at any time, but to attempt to do so without the actual scene before one would be like tuning of the fiddles before the opera. A middle-sized house, or a long, low house, a bungalow-built house, always seem to me to cry out for middle-sized or smaller-sized, thirty or forty-feet trees.

Tall, enormous trees are apt to overshadow and overpower by their disproportionate size, and height; there should be refinement in their outline. If, for instance, Pavias were growing in the grounds of houses on the outskirts of many of our towns, where now Wellingtonias, Deodars and Monkey Puzzles—monstrosities only because they are misplaced—are now growing, burying, darkening and obscuring the window lights there would be picturesqueness instead of ugliness. *Chas. Coltman-Rogers, Stanage Park, Radnorshire.*

PRUNUS YEDOENSIS.

This is the Cherry so extensively planted in the parks, streets, cemeteries and temple grounds of Tokyo, Yokohama, and other places in Japan. In his remarkably interesting *Monograph of the Cherries of Japan*, published in March, 1916, Mr. E. H. Wilson states that over fifty thousand trees of Prunus yedoensis are growing in the city of Tokyo and the immediate neighbourhood.

It seems remarkable that such a very popular Japanese Cherry should have only quite recently been introduced to American and European gardens. The first record of the tree in America is the raising of plants from seeds received from the Tokyo Botanic Garden in 1902. Kew first received seeds from the Arnold Arboretum in 1915.

Prunus yedoensis was named and described by Matsumura in 1901. With the limited knowledge of the history of the tree available at that time, he gave Oshima Island in the Province of Idzu as its country of origin. The indigenous Cherry of that island, however, according to Mr. Wilson, is the wild form of Prunus Lannesiana, in cultivation at Kew and elsewhere as var. albida and var. spontanea.

The generally accepted origin of the subject of this note at the present time is that it is a hybrid between P. subhirtella var. ascendens and P. Lannesiana var. albida. This is rather borne out by the considerable variation in the botanical characters of trees of P. yedoensis raised from seeds. The spray illustrated (Fig. 138) is from the tree which supplied the material for the *Botanical Magazine* (tab. 9062), and has flowers an inch across, most resembling P. Lannesiana var. albida. This also was the form which received the Award of Merit (see p. 256) when exhibited by Mr. R. C. Notcutt at the fortnightly show of the Royal Horticultural Society on April 5. A tree at Kew raised from seeds received from the Arnold Arboretum in 1915 has flowers half the size, and with the pubescence of P. sibhirtella.

In habit, P. yedoensis is described as a fast-growing tree up to fifty feet in height, with a spread of branches fifty feet to sixty feet through. It flowers in March, with P. subhirtella, but at least a fortnight or more in advance of the many beautiful named varieties of Japanese Cherries—forms of P. Lannesiana and P. serrulata. The blooms are borne in clusters of two to six, pale blush when opening, changing to white with age. They are slightly fragrant. The fruits are shining, black and globose in shape.

Because of its early flowering and floriferous characters, P. yedoensis should prove a useful addition to the trees grown in pots for greenhouse decoration in early spring.

With regard to propagation, the best forms only should be propagated by budding, in preference to raising a mixed collection of forms from seeds.

The name Prunus serrulata var. Yoshira was given in conjunction with P. yedoensis on the card recording the Award of Merit referred to. This name does not appear in Wilson's Monograph, and it is to be hoped that only the name of P. yedoensis will be used in nursery catalogues.

Considerable confusion appears to exist in the spelling of the Japanese name of this Cherry. A tree obtained from Hesse for Kew in 1898, under the name of Cerasus Pseudocerasus *Yoshima* has since been identified as Prunus yedoensis. The name of P. serrulata *Yoshira* was bracketed with P. yedoensis at the fortnightly show of the R.H.S., when the Award of Merit was given. In the *Journal* of the Royal Horticultural Society, Vol. 50, Part 1 (1925), p. 96, Mr. Collingwood Ingram, in his "Notes on Japanese Cherries," gives the spelling of the Japanese name as *Yoshino*! *A. Osborn, Kew.*

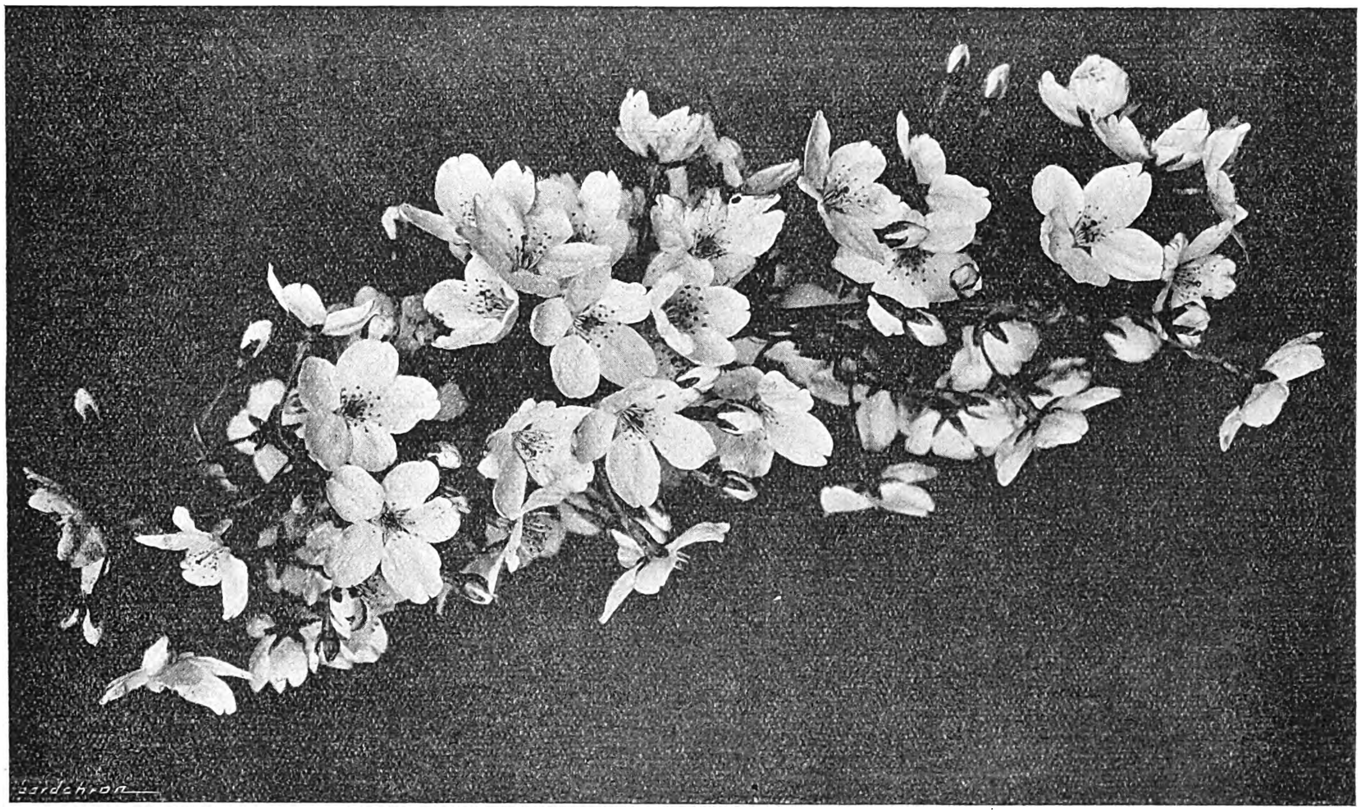


FIG. 138.—PRUNUS YEDOENSIS.

GUARANTEES AND WARRANTIES.

On every sale of goods certain things are "guaranteed" or "warranted" by law, that is whether there is any express agreement in the contract having that effect or not, in addition to this, of course, the parties frequently make similar arrangements themselves; what are the effects of these arrangements?

What is generally known as a "guarantee," is at law either a *condition* or a *warranty*. If it is an agreement which is collateral to the main purpose of the contract it will be a warranty, but if, on the other hand, it is of vital importance to the contract, it will be a condition. For example, where A was buying some Hops and told the seller that if sulphur had been used in their production he "would not even ask the price," and it afterwards turned out that sulphur had been used, although only for a very small proportion of the Hops, it was held that this was a condition and not a warranty. The Court considered that to a certain extent the making of the contract depended on the presence or absence of the sulphur.

Why is it so important to distinguish between a warranty and a condition? The importance of the distinction lies in the fact that the remedies for breach of condition are far superior to those for breach of warranty. In the case of a breach of warranty the injured party is only entitled to ask the Court to award him damages, he cannot claim to have the whole contract set aside; whereas in the case of a breach of condition the general remedy is the setting aside of the entire agreement, or the injured party may, if he likes, treat the condition as a warranty and claim damages or a diminution of the price.

Among those conditions implied by law is one that where a buyer makes known to the seller the purpose for which the goods are required so as to show that he relies on the latter's judgment, and it is the seller's business to supply such goods, there is an implied condition that the goods are reasonably fit for the purpose specified. Thus, if some weed-killer is purchased under the above conditions, and the buyer intimates that it is to be used on a lawn, should it prove injurious to the grass and only intended for paths, the seller could be proceeded against under this implied condition. It must, however, be mentioned that this rule does not always hold good in the case of articles sold under a patent name.

Secondly, where goods are bought by description from a person who deals in goods of that description, there is an implied condition that the goods are of a merchantable quality; provided that if the buyer has examined them there is no implied condition as regards any defects which the examination ought to have revealed.

Lastly, where goods are sold by description, there is an implied condition that they shall correspond with that description, and if the sale is by sample as well as by description, the bulk of the goods must correspond with both the sample and the description. *Harold Sharman.*

NOTICE OF BOOKS.

Chrysanthemums.

This interesting brochure[*] consists of two quite distinct parts—a long and interesting historical and physiological note by way of introduction, by the late Henry L. de Vilmorin, which first appeared as an article in the *Revue Générale Internationale* for March, 1896; and directions for the cultivation of the Chrysanthemum, which have been thoroughly revised and brought up to date for this, the third edition of the book. For the value of the cultural directions it is sufficient to state that the book emanates from the famous firm at Verrières; those who have seen the Chrysanthemums shown by the firm at the Paris autumn exhibitions will be satisfied that the methods employed to bring about such striking results must be of the best. The manner of presenting the information offered is also excellent, especially the illustrations, which are clear and informative, and add very greatly to the value of the brochure. Some of the specimen plants illustrated, described as "Forme Japonaise," are marvels of training, with their even rows of flowers all at the same stage of development; and whether one admires such ordered beauty, or prefers something a little less rigid, there is no doubt of the skill and experience required to bring about these results. The different forms are well shown in a series of line-drawings which will always be handy for ready reference. Pests and diseases are adequately treated and some useful lists are given of varieties suitable to the various methods of cultivation.

PUBLIC PARKS AND GARDENS.

The Corporation of Southport, Lancashire, is constructing a new open-air bathing lake in the Princes Park, the work having been begun partly in order to provide relief work for the unemployed of the Borough. It is intended to give the lake a picturesque setting, the effect being that of a lake in a garden; raised seats are to be provided on terraces round the water from which the whole of the park will be visible. The main entrance to the lake will be from the park, with subsidiary entrances from the Marine Drive. The dressing box pavilions, café and long varandahs are placed with their backs to the prevailing winds, and form a semi-circle which will protect the bathers as well as the visitors sitting on the terraces. The lake is elliptical in shape, the maximum length being 330 feet, and the maximum width 212 feet; it will contain 1,400,000 gallons of water. The depth will vary considerably in different parts of the lake, the maximum diving depth being nine feet.

LEAF SCORCH OF AZALEA.

A New Fungous Disease.

In 1926, in the May number of the German gardening periodical, *Der Blumen-und Pflanzenbau*, there appeared an article by Dr. Flachs entitled "Septoria azaleae, a Dangerous Disease of Azaleas,"[*] The writer stated that in January, 1926, a remarkable disease of Azaleas occurred in one of the larger commercial nurseries in Munich. The affected leaves showed brown patches of irregular shape, which, starting sometimes at the margin, sometimes at the tip, soon extended further over the leaf. Later, these leaves dried up and fell off. Two early varieties suffered especially, viz., Madame Petrick and Madame Aug. Van Damme. The damage caused was very considerable; out of 2,000 plants, 600 were so severely attacked that they were unsaleable. Both the varieties had been imported from Belgium in the previous autumn and were forced during the winter. Signs of the disease had been noticed in the previous year on the variety Simon Mardner, but no importance had been attached to it as the injury caused had been very slight.

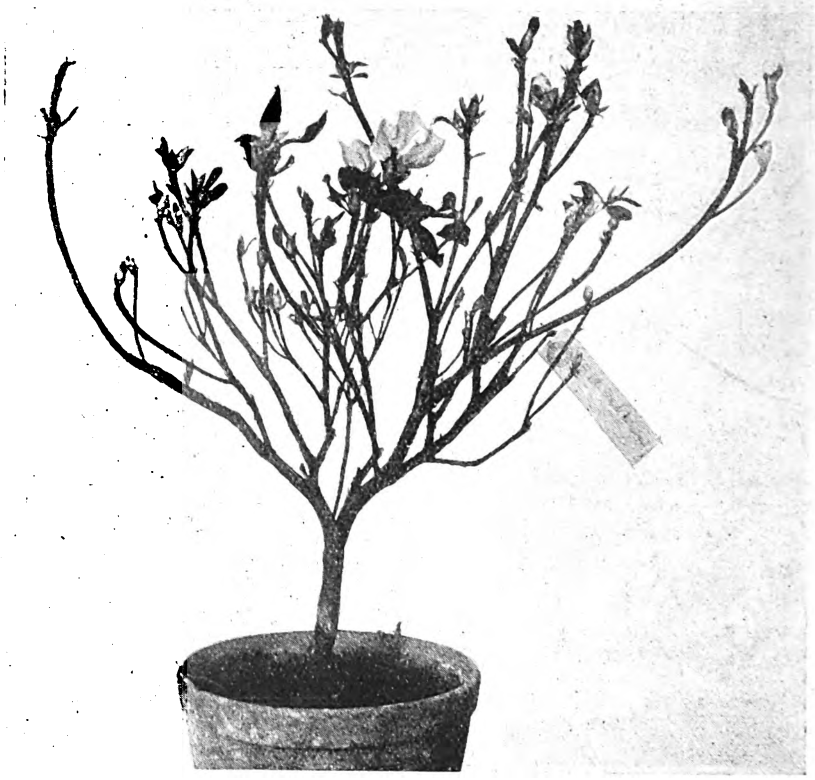


FIG. 139.—LEAF SCORCH OF AZALEA.
An infected plant, showing almost complete defoliation.

Further enquiries made in Munich showed that the same disease had also appeared in two other nurseries which also had received supplies from the same firm in Belgium. Close inspection of the plants in question showed a disease of the leaves only; the stem and roots were apparently healthy. Sections made through the diseased portions of the leaf showed under the microscope, chiefly in the palisade or assimilation tissue, more rarely in the spongy parenchyma, fructifications (pycnidia) with colourless mycelium, which after being kept for some time developed thread-like spores which finally were ejected through the epidermis. The spores, which were more or less curved, averaged 15—20μ long and about 2·5μ broad. Their contents were finely granular and hyaline. With high magnification they were seen to be 1- to 2-septate. The shape and size of the spores, as well as the general appearance of the disease, agreed completely with the fungus Septoria azaleae, described by Voglino in 1899.

Dr. Flachs states that the fungus is not new to Germany, since Ewert found it in 1908 in Lower Silesia on Azaleas which had been obtained from Saxony.

Some plants were also attacked by the mould, Botrytis cinerea, the flowers especially being affected. This fungus, though, was only an associate of the above-mentioned Septoria, and it rarely attacked the plants to any considerable degree.

The present disease, however, was first described, in Italian, by Dr. P. Voglino[*] in 1899. Some of the more interesting points mentioned in this article, which is entitled "A New Disease of Azalea indica," may be given here. The author carried out his observations on affected plants in the Municipal Gardens at Turin. During March and April plants of Azalea indica exhibited, instead of the normal, vigorous, spring growth of healthy leaves, a diseased appearance due to the leaves being brown and dried up. Further, through the diseased leaves falling off, the plants became by degrees more or less defoliated. It was noticed that plants on which the disease had persisted for several years were smaller in comparison with normal ones, their lateral branches were long and thin, their leaves shorter and narrower, and the number of their buds was reduced to a third. The difference between diseased and healthy plants was then so remarkable as to attract the attention of the general observer. The first sign of this leaf disease was a change to a yellow-reddish colour of a small apical portion of the leaf; this then turned to a rusty brown colour until, step by step, the whole leaf was turned brown, dried up and fell to the ground. Microscopical examination of the affected leaves showed the presence in abundance of mycelial hyphae in the palisade tissue, and especially in the spongy parenchyma. The pycnidia which occur usually on the lower, but sometimes on the upper surface, of the leaf are dark brown, almost round, and slightly depressed; they are at first immersed in the tissue of the leaf, but at length become prominent in the form of minute black points visible on the surface. When mature, the pycnidium bursts open and the spores emerge through an apical pore. These are elongated, narrowly cylindrical and oval-elongate, hyaline, minutely granular, 1—3 septate, sometimes constricted at the septa, 12—18μ × 1·5—2·5μ. The fungus was found to be new to science and named Septoria azaleae. A Latin diagnosis is given. The germination and growth of the spores on certain media are described; they gave rise to secondary conidia, 8-10μ × 2·5μ. Successful inoculations of healthy plants were made by placing spores in a drop of moisture on the leaf. It was observed that the mycelial hyphae, produced as the result of infection by pycnospores, crowd round the vascular bundles in such a way as to impede the passage of liquids in the vessels, thereby causing the withering of the tips of the leaves. The production of secondary conidia (as had been noted in cultures) was observed on the surface of the leaf. The disease is perpetuated from year to year by spores contained in the pycnidia on fallen leaves. Diseased leaves, bearing pycnidia, were collected in March, and when examined in the following December, the pycnidia were found to contain viable spores. Further spread of the disease takes place by the conidia which are formed in abundance on the surface of the leaf. To control the disease, the fallen leaves should be collected and burnt.

---

[*] *Les Différentes Cultures du Chrysanthème.* Par Vilmorin-Andrieux et Cie., 3rd Edition. Paris, Vilmorin-Andrieux et Cie, 4, Quai de la Megisserie. Price not stated.

[*] Flachs: Septoria azaleae eine gefährliche Azaleenkrankheit. *Der Blumen-und Pflanzenbau,* Heft XI. Jahrgang 41. 27 May, 1926, pp. 166–7.

[*] Voglino, P. Di una nuova malattia dell'Azalea indica. *Malpighia,* Vol. xiii, pp. 73–86. 1899.

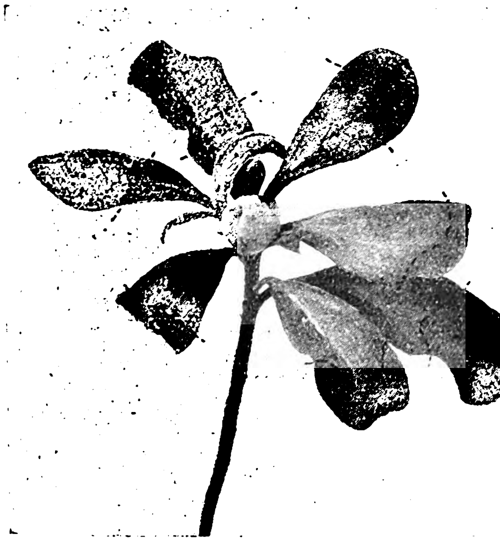


FIG. 140.—LEAF SCORCH OF AZALEA.

A stem of the variety John Llewelyn. In this variety a few leaves, which were brown at the tips, were left below the blossom buds. The extent of the brown, diseased areas is indicated by the dotted lines. March, 1927. (Natural size).

A note, calling attention to the occurrence of the above disease in Germany in 1926, as described by Dr. Flachs (see above), appeared in *The Gardeners' Chronicle* of February 12, 1927 (page 109), and a warning was given that as the disease might appear in this country, it was advisable for growers to keep a sharp look out for it.

A few days after this warning was published, we received through the medium of *The Gardeners' Chronicle*, from the nurseries of Messrs. C. Duruz and Sons at Hythe, specimens of twigs cut from three different varieties of Azalea, which showed on the leaves undoubted symptoms of the disease.

We were informed that the plants affected formed part of a consignment from Belgium which arrived during the early part of September, 1926. Azaleas, when first potted up, are known to suffer a slight leaf-fall for a short period, but in the present instance the 200-300 plants (which at the time were not thought to be diseased) continued to shed their leaves throughout the winter until their defoliated condition rendered them unsaleable in the spring.

On March 22, 1927, a visit was paid to the nursery in order to form some estimate of the amount of damage to different varieties and to see the effects of the disease on a larger scale than was possible with specimens sent to the laboratory. The following varieties were being grown in pots on the staging of the glasshouses: Prés. Osw. de Kerchove, Ern. Eeckhaute, Mad. Petrick, Vervaeneana, Tempérance, Mad. John Haerens, John Llewelyn and Ernst Thiers. All were badly affected with the disease, the first three named being in the worst condition and almost completely defoliated (Fig. 139). A quantity of the brown fallen leaves was scattered around the pots. Varieties less affected were stripped of their leaves except at the tips of the branches, where a terminal "rosette" of leaves remained immediately below the blossom buds (Fig. 140). These leaves also were turned brown, and it was difficult to find even two or three leaves of the original foliage unaffected on any plant of any variety.

The extent to which the original foliage had been retained appeared to influence the development of the flower buds and new wood buds. Thus in the case of the variety John Llewellyn, which was still provided with a few leaves (also infected) under the blossoms, the latter were opening regularly over the whole plant. On the other hand, the variety Madame Petrick which was practically devoid of old foliage, showed no blossom buds opening, and there was little prospect of their ever doing so. The development of new leaves and the growth of wood buds, however, was more advanced in those varieties which had been most completely defoliated, and on those stems which had lost all their leaves a few lateral buds (situated above the leaf scars) were already swelling. In most cases, only the terminal wood bud (situated beside the blossom bud) had grown out and unfolded new leaves. The recently expanded foliage was not found attacked.

The disease is confined to the leaves, no other part of the plant being affected. The first symptom of attack is a brown coloration nearly always at the apex of the leaf; this extends across the whole width of the leaf-blade and gradually spreads downwards until the whole lamina is turned brown. The leaf usually falls off when the brown coloration has covered about half its area, but on rare occasions a completely brown leaf may be found still attached to the stem. While the leaf remains on the plant the boundary between the brown and green parts is clearly defined. With the naked eye, or better with a lens, minute black dots can be distinguished in the brown area both on the upper and lower surfaces of the leaf (Fig. 141). These may be scattered, but are most commonly grouped in patches, and here the surrounding leaf-tissue is somewhat darker brown. When in groups, the black dots cover nearly circular areas of from 1 to 4 mm. in diameter, and are visible on affected leaves still attached to the plant, but are best seen on those which have fallen to the ground and after thus having been in a damp situation for some time, have been allowed to become partially dry.

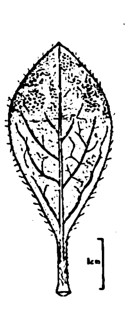


FIG. 141.—LEAF SCORCH OF AZALEA.

A leaf, showing numerous black dots (the pycnidia of the fungus) in the brown, apical half of the lamina. Upper surface. Two-thirds natural size.

The black dots are the fruiting bodies (pycnidia) of the fungus which is invading the interior of the leaf. They are imbedded in the leaf tissue (Fig. 142) below the cuticle and outer epidermal wall, and measure approximately 1/10mm. (100μ—145μ) in diameter. As they grow, the pycnidia force up the epidermis of the leaf into small mounds or blisters which eventually burst and so allow the liberation of spores from the pycnidium. These escape either in a long, tendril-like mass about 30μ thick or, if the rupture of the pycnidium has been more complete, they remain in an irregular heap about 100μ in diameter on top of the pycnidium. The spores are colourless, 1—4 septate, often slightly constricted at the septa, and are oblong-linear with rounded ends. The septation can best be seen under a high power objective with the spores mounted in Gram's Iodine Solution. The spores (Fig. 143) measure 11—34μ × 1·5—2·5μ (average 19μ × 2μ).

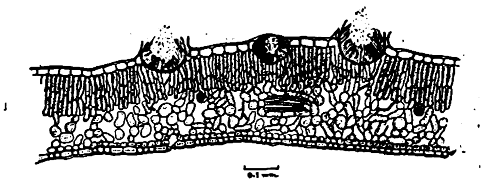


FIG. 142.—LEAF SCORCH OF AZALEA.

Part of a transverse section of a diseased leaf. Two of the three pycnidia embedded in the palisade tissue have burst the upper epidermis and are discharging spores. × 46.

In addition to forming pycnidia below the epidermis of both upper and lower surfaces, the fungus hyphae are found spreading through the leaf tissues and here and there accumulating so densely that they have the appearance of forming sclerotia. In the sections examined, such accumulations were found in the mesophyll and were close to vascular bundles; they are clearly distinguished when the sections are cleared in lacto-phenol and stained with Cotton blue.

Germination of the spores takes place readily in water. Small secondary conidia, measuring 7—11μ × 2—3μ were observed in the water, but no search was made for their production on the leaf surface.

While, in this country, the disease remains confined to imported stocks of indoor plants, it seems hardly necessary here to consider measures of protection by spraying, since in all probability it is brought from abroad already on the plants. Affected plants should be destroyed; Messrs. Duruz inform us that this was done with regard to the imported plants described above. In glasshouses where diseased plants have been standing, it is important that all fallen leaves should be removed and burnt so soon as the diseased stocks have been disposed of, in order that fresh, healthy plants coming into the houses in the following autumn shall not be exposed to infection. If the first signs of disease are observed early enough, the affected plants should be removed from the rest. By keeping the foliage of the remainder as dry as possible and by allowing the maximum ventilation consistent with safety, germination of any spores which might possibly have reached the leaves, will probably be prevented or retarded.

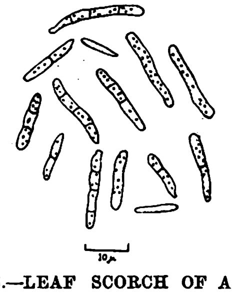


FIG. 143.—LEAF SCORCH OF AZALEA.

Spores of the fungus Septoria azaleae. × 566.

Damage to the leaves of imported Azaleas, caused by insect pests, has been noticed in this country; the symptoms should be distinguished from those above described and due to Septoria azaleae.

We should like to express here our thanks to Mr. W. Rigden, foreman at Messrs. Duruz's nurseries, who has helped us in the investigation of the disease by supplying us with numerous specimens and full information regarding them. *E. S. Salmon and W. M. Ware, South-Eastern Agricultural College, Wye, Kent.*

MARKET FRUIT GARDEN.

It was the wettest March experienced at my place since 1914, the total rainfall being 4·29 inches, more than two inches above the average. The land was so wet that scarcely any cultivation or hoeing could be done. Apart from this, I do not think the heavy rainfall did any harm, so far as fruit trees are concerned. Fortunately, it is a normal, or perhaps slightly late season, Black Diamond Plum and a very few Gooseberries being the only crops in bloom during March. One may even take comfort from the heavy March rainfall in the thought that we are all the more likely to have fine weather when most of the bloom is open. That there will be a big display of Apple blossom is now certain; and Plums look more promising than might have been expected after last season's crop. So far, the buds are quite free from insect pests, as was anticipated after winter spraying with tar-distillate wash. The delay in starting spring cultivation can hardly be said to matter. So long as the soil remains moist, there is no urgent need to disturb the surface, unless weeds are troublesome; and so far they have made no progress. The extra time afforded for completing winter work, especially pruning, has been very welcome. A change to drier, sunnier conditions now, however, would be very beneficial.

Preventing Apple Scab.

Since every Apple and Plum on my place was sprayed in winter with tar-distillate, no treatment for insect pests should be necessary round about blooming time; and the coast is clear for preventive measures against Apple scab. Since scab does more than anything else to spoil the quality of the crop and reduce its value, I consider this to be one of the most important operations of the whole season. A heavy crop is of little use unless the fruit is clean. We have had three years in succession in which the disease has been severe. By the law of averages there ought to be some chance of better fortune in the present season; but it would never do to trust to this. Happily, I shall undertake the work with more confidence than in past seasons, because last year's programme of spraying was more successful than any adopted previously. A pre-blossom application, given when the buds were in the pink stage, proved very valuable. It is a comforting fact that, at this stage, spraying is most unlikely to do any damage. All varieties, including Cox's Orange Pippin, will withstand normal Bordeaux mixture (8lb. copper sulphate, 8lb. lime, 100 gallons water) before blooming. There is nothing better to use at this time than freshly-made, home-prepared Bordeaux mixture. After blooming, there is more danger of scorching, and milder fungicides must be used. The excess-lime Bordeaux formula (6-20-100) caused no scorching last year, and only a trifling amount of russeting of the fruit in the case of some varieties. It is certainly not safe, however, for Cox's Orange Pippin, and personally, I do not think it is for Beauty of Bath either. For these sorts the only safe wash appears to be lime-sulphur at a strength of one part to ninety-nine parts of water, with the addition of arsenate of lead. This is a very mild fungicide, and cannot be expected to do so much good as Bordeaux mixture; but it is better than nothing. The excess-lime Bordeaux mixture is rather troublesome to prepare on a large scale, owing to the amount of lime; and I had a good deal of hindrance from blocked nozzles last season. For this reason, I shall substitute lime-sulphur at one part to fifty-nine parts of water, with arsenate of lead, in some cases, for varieties other than those mentioned above. This specific is no trouble to prepare, and it does not russet the fruit; but it is liable to cause an abnormal dropping of the crop. I have often used lime-sulphur before, but never after a pre-blossoming spraying with Bordeaux mixture, which might make all the difference to the control obtained. The combination seems to be worth trying. The second spraying is, of course, given just after the fall of the petals; and this should be followed by a third about a fortnight later. The full programme will be carried out in the case of varieties particularly liable to scab, such as Worcester Pearmain and Allington Pippin. I think it is quite likely that one spraying would protect such a variety as Bramley's Seedling, which, until recently, has not been subject to scab in most places.

Black Currants not Transplanted.

Every year I insert many cuttings of Black Currants in order to have a supply of bushes to fill the gaps caused each season when the crop is rogued for reversion. In the past winter I had far more two-year-old bushes than was needed for this purpose. As they had made exceptionally good growth, it was decided to grub some of the rows and leave others just as they were to fruit. These now stand in the nursery rows, where they have been since the cuttings were put in about six inches apart in the rows. They will probably bear quite a good crop this summer, as they have not been cut down. I have left bushes in this way before, and they cropped very well. Their being so close together in the rows does not seem to matter; it enables pruning to be done very severely, thus obtaining a good supply of young wood. Except that it is generally convenient, I do not think there is anything to be gained by transplanting Black Currants. Some of the east Norfolk growers, who specialise in this crop, form large plantations by putting in cuttings where the bushes are to stand. I have two plantations in which the bushes stood originally six feet apart in the rows, but are now three feet apart, the gaps having been filled by putting in cuttings. There is no difference in the bushes at the present time. Two-year-old bushes are sometimes advertised as "transplanted stuff." I always feel that this probably means that they were so foul with weeds at the end of the first year that it was easier to transplant them than to clean the land. Anyhow, there is certainly nothing gained by transplanting the bushes before the final shift to their permanent quarters. When I have to buy bushes to make a new plantation, I prefer to have one-year-old specimens. A few bushes of the new variety, Davison's Eight, purchased last autumn, have been planted eight feet apart, and cuttings put in midway between.

Stored Apples.

Growers who stored Bramley's Seedling last autumn have had their reward, as they have been selling at 18s. to 25s. per bushel wholesale, which prices are higher than those realised by any of the imported dessert Apples. The quantity on the market must, of course, have been very small, but even so, it is extraordinary that buyers should have been found for these Apples, for the retail price must have been very high. Evidently the time to store Bramley's Seedling is when the crop is unusually short, and not when it is plentiful. In the latter event, unless cold storage is available, so that the fruit can be kept until April, it generally pays better to sell quite early in the autumn. At present I am using Chelmsford Wonder, which has kept very well in an ordinary fruit room. This is not a commercial variety, but there are a few trees in my oldest plantation. With its bright yellow colour and crimson stripes it is quite an attractive cooking Apple, and the flavour is good.

Canning Factories.

The business of canning home-grown fruits is making a most promising start. Several factories will be in operation in the coming season. The movement deserves every encouragement. An enormous amount of imported canned fruit is consumed in this country; and most of it comes in cans which were made here and sent abroad to be filled. With the exception of Pears and Peaches, we can grow fruit which is quite as good for canning as that grown abroad, and, in the case of bush fruits, very much better. There is no reason why the public should not buy canned home-grown fruit instead of foreign. Obviously, any fresh outlet will be greatly to the advantage of growers. In the case of soft fruits, supplies required for canning have to be of much better quality than is necessary for jam-making, and far higher prices are offered accordingly. Only in the case of Apples can a low grade be utilised, as skin blemishes do not matter in fruit which has to be peeled before it is canned. Small grades of Tomatos may also be used, and are vastly superior in flavour to the foreign brands.

Feathered Stems in Young Trees.

When forming new plantations of Apples or Plums, I generally buy maiden trees, in order to train them with just the length of stem required. Whilst the head is being made, laterals push from buds all up the stem. This "feathering" is always allowed to remain for two years, as it is said to assist the stem to thicken. Since it would be much less trouble to keep the stems clear of lateral growths from the start, I am glad to see proof that the practice of retaining the feathering for a time is worth while. This comes in the report of an experiment carried out at the East Malling Research Station.* It was found that the feathering gave a rather sturdier and heavier tree. There was slightly more thickening of the stem, particularly at the collar. The most striking effect, however, was found in the roots, which were more plentiful and wider-spreading on trees which had been allowed to feather than on those which were kept clean-stemmed by rubbing out the laterals in summer. Incidentally, this experiment probably shows why the practice of summer-pruning tends to bring young trees into bearing. The suppression of growths in summer no doubt restricts root formation, and therefore reduces vigour; and anything which does this, in the case of a young, over-vigorous tree, would help to bring it into a fruitful condition. *Market Grower.*

FRUIT REGISTER.

PEAR VERULAM.

I have just seen Mr. Hollingworth's note regarding this old Pear, and I am sure it will interest him to know that at Cirencester Park, where I was gardener for over forty years, there is a very old tree of this variety. Its behaviour is identical with that of the tree Mr. Hollingworth refers to in that it has never failed to bear fruit. It, however, bore best biennially, and the year after its great crop was a lean one. Its regular cropping was its chief merit, for so far as my experience goes, the quality of the fruit was of low value. The tree I am writing about is very old, and was probably planted by a gentleman named Gregory, who once had Cirencester Park as a nursery.

A gentleman to whom I showed this tree some years ago, told me the following story: In Worcestershire, the Verulam Pear is called the Black Pear of Worcester, and was so named by King Charles, who once visited Worcester. The Pear was served in a stewed state at a banquet, and was then of a dark colour. The King asked its name and, as no one could tell him, he said, "it shall be called henceforth the Black Pear of Worcester."

The Cirencester tree is a tall, shapely standard. I am told that when grown against a warm wall the fruit of Verulam is of fairly good quality. If that is so, it would be worth while to give the tree this protection, for it is a most reliable cropper. *T. Arnold, Cirencester.*

---

* *Journal of Pomology and Horticultural Science.* Vol. vi. No. 1.

VEGETABLE GARDEN.

SEAKALE.

It may seem strange to state that of all our most important forced vegetables none is more easily cultivated than the Seakale. Given the one essential at the time of blanching—absolute darkness—it certainly is one of our choicest winter and early spring vegetables. Originally a native seaside plant (Crambe maritima) it has been grown in this country as a cultivated vegetable since 1753.

The planting season of Seakale is at the end of March and during April. It delights in an open and sunny situation, where the soil is deep and enriched with well-rotted farmyard manure. Lime is also useful as a preventive against disease, but should not be mixed with the manure. Scatter the lime on the surface, ten pounds or so to the rod, and lightly fork it into the soil just prior to planting.

Seakale may be raised from seeds sown very thinly, two inches deep, in drills two feet apart, during April, and the seedlings eventually thinned to stand at eighteen inches apart in the drill. The strongest of these plants should be fit to force the following December, and the others, if planted in good, rich soil, should force the second year.

The better plan, though, is either to purchase year-old plants or good planting "thongs," which are really root-cuttings, *i.e.*, pieces of the Seakale roots, six inches long and as thick as one's finger. Obtained now, the one end will show quantities of little buds ready to burst into growth. These buds should be reduced to two or three, and by the end of May, to one single growth. Have the ground lightly forked over and made level by raking the surface. The root cuttings are then planted with a dibber, eighteen inches apart and twenty-four inches from row to row. When planting see that the crown of the root-cutting is about two inches below the surface of the soil. Encourage all the growth possible by stirring the soil between the rows to conserve moisture and to keep down weeds, and take particular care to reduce the shoots to one on each plant. By October the plants will have finished their growth, the leaves turning yellow and easily parting from the crown at the first sign of frost. Then the roots may be lifted, trimmed, and stored away in sand or ashes ready for use when required. The strongest of the trimmings should be collected, cut into six-inch lengths, laid on their sides embedded in sand or sifted ashes, in boxes, and placed in some cool place free from frost until planting time the following March or April.

For successful forcing the essentials are, a mild heat, not more than 55°, and total darkness. There must be no half measures about the latter. The least ray of light and the whole year's labour will be in vain. A mild hot-bed made up of equal parts of stable manure, and freshly collected leaves, with an ordinary garden frame set on top, will suit admirably. The crowns are planted thickly, *i.e.*, an inch or two apart, in leaf-mould or sifted soil, allowing sufficient head-room for the leaf-stems to develop. The frame light must be well-matted to exclude light, and even over the mats it is advisable to have a foot or so of stable litter.

By following this method, crisp, succulent heads may be had in about a month from planting To keep up the supply, fresh crowns must be introduced in fortnightly batches to suit requirements.

When the growths are six to seven inches long they should be cut with a small portion of the old stem attached and tied together in bundles until required.

Forcing and blanching in the open is perfectly simple, but the produce is not obtained quite so early. Ten-inch pots that have done service for Chrysanthemums are taken to the Seakale plot and one inverted over each crown. The pots may be surrounded with hot fermentng manure, and in the course of a few weeks well-blanched produce will be obtained In some of our older gardens the rows are somewhat close, twenty inches or so apart, missing out every fourth row to provide a pathway; on these beds the manure is spread a foot deep, and Seakale is gently forced in that way; a plantation so treated will continue for several years, but the roots that have been forced in frames or houses are of no further use. The variety Sutton's Ivory White (Fig. 144) is one of the best. *H. H. Cook, Reading.*

SOME UNCOMMON VEGETABLES WORTH GROWING.

(*Continued from p.* 271.)

Couve Tronchuda withstands frost very well indeed, and is invaluable in the garden as a substitute for ordinary Cabbage and a change from Kales, etc., during the winter. Some care is necessary in boiling the midribs, which should be eaten while they are young and tender, otherwise they cease to be like Seakale, and are somewhat less palatable. When properly cooked they have a very decided Seakale flavour, and are greatly esteemed accordingly.

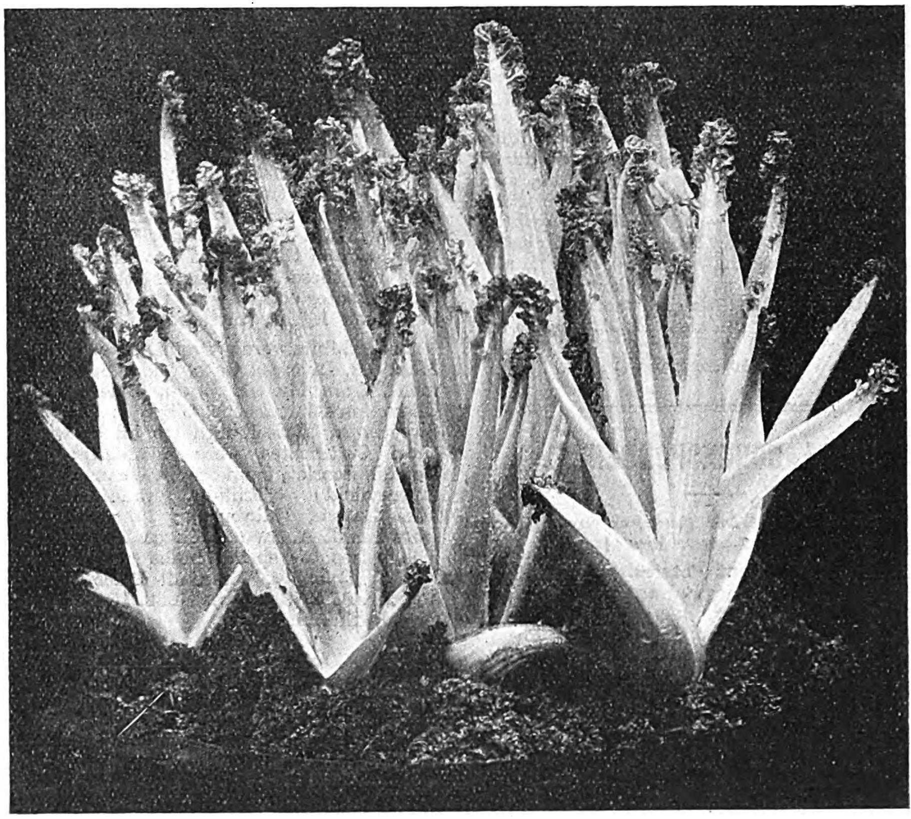


FIG. 144.—SEAKALE SUTTON'S IVORY WHITE.

The Egg Plant, or Aubergine (Solanum Melongena) is another delicious vegetable when properly prepared, but it is not to everyone's taste. The plants require to be started in heat, as the seeds are sown about the end of January or beginning of February. In a warm season the plants will fruit freely under a sunny wall, but generally, a few plants in pots are all that are required. The flesh should be taken out of the skin, minced with a little Mushroom, Tomato, bread crumbs and Parsley. Then add a little butter, replace in the skin, and bake in the oven. Another and simpler method of cooking it is to slice the fruits, which are ready for use in the autumn only, and fry them in oil or butter, with pepper and salt to taste.

Seeds of French Sorrel (Rumex scutatus) should be sown in the open in fairly light soil, early in April, in shallow drills made six inches or eight inches apart. The seedlings should be thinned early to produce plants with leaves ready for consumption during the following autumn, say, the end of August to November. Leaves of the finest quality are obtained from plants a year old. These may be cooked and served like Spinach, or used as an ingredient in soups, sauces and salads. It is when mixed with salad, however, that, in my opinion, the leaves are most highly prized. Personally, I would much rather not have it in the garden at all, as it is more nuisance than it is worth.

Labrador Kale (Brassica oleracea acephala labradorense) is a very distinct and prolific Kale, each plant producing, until late in the season, several branches of dark green foliage, with pink mid-ribs, which boil a fine dark green, and are very tender and delicious. The plant is of dwarf growth, about twelve inches, and very hardy. The seeds should be sown out-of-doors, from April to May, to have plants ready for cutting during the following winter.

Mercury, or Good King Henry (Chenopodium Bonus-Henricus) is a perfectly hardy and easily-grown vegetable, the leaves of which are used in the same way as Spinach. By earthing up the shoots they may, instead, be blanched and used as a substitute for Asparagus. The seeds germinate quickly, and the blanched shoots are available for use as above during the latter end of April and early in May. The leaves, if allowed to grow in the ordinary way, may be gathered in May and used as a substitute for Spinach. Sow the seeds during April, in drills made twelve inches apart, and in due course thin the seedlings to one foot apart in the rows. Successional sowings may, if desired, be made during May.

Gardeners have a difficulty in maintaining an unbroken supply of true Spinach (Spinacia oleracea) during the whole of the summer, but New Zealand Spinach provides a good substitute. It is prized by many, also, because it lacks the peculiar bitterness of true Spinach.

To obtain an early supply seeds should be sown in gentle warmth in February to produce leaves for consumption from June to October. Outdoor sowings made in April will provide good plants for consumption from July to October and, if necessary, another sowing may be made out of doors in May to provide plants for use in August to October. The growth of the plant is rapid, and there should be no stint of water at the roots in dry weather. The seedlings should be transplanted when ready, in rows made four feet asunder, the plants themselves being three feet apart in the rows. From the gardener's point of view, next to Spinach Beet (Perpetual Spinach) Tetragonia expansa is one of the best possible kinds of Spinach to have in the garden.

Another useful but rare substitute for Spinach is Purslane (Portulaca oleracea), a dwarf, annual plant with succulent leaves and stems which, when cooked like Spinach, constitutes a most delicate dish. The leaves are also used raw in salads. For obtaining supplies in summer and autumn sow the seeds from the middle of May to August.

Potato Onions (Allium Cepa aggregatum) are underground Onions. If they are planted in March in well-prepared, rich ground, free from any kind of long manure, and treated like Shallots, they will produce a welcome crop of early Onions, ready for use in July to August. They are not good keepers, but are excellent for eating raw in salads or for cooking purposes. They are indeed invaluable for use over a period of the year when other Onions are scarce.

The bulbs should be dibbled in the soil about ten inches apart, in rows from twelve inches to fifteen inches apart, the bulbs themselves being covered to a depth of two inches. It is the custom, in the south of England, to plant Potato Onions on the shortest day and lift them on the longest, but where this is done there is a great danger of loss in the crop during a severe winter. When sown in March, such losses are few and far between. It is surprising these Potato Onions are not grown more often in English gardens than they are. Once established, it is an easy matter to save the smaller bulbs and offsets for planting when the crop is lifted in August. In Cornwall the crop is ripe and ready for lifting in July. *E. A. Saunders.*

(To be continued.)

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents.]

Experiment with Seed Potatos.—Mr. W. F. E. Seeley, Headmaster at Balsall Street Central School, near Coventry, has endeavoured to emphasise the point that the vigour of Potato stocks may be maintained for a long time, if not indefinitely, by selecting tubers from vigorous roots, lifting them while the haulms are green and, after a few hours' exposure to sunshine, setting the tubers up in sprouting trays until planting time. When the experiment was started three years ago, the sprouts were reduced to one per tuber, retaining the one from the "rose eye," which is invariably the stronger. The following year it was noticed that seventy-five per cent of the tubers produced only one sprout, the other eyes remaining quite dormant. During the third year ninety-five per cent. of the tubers produced only one sprout, and although other eyes were visible they had almost disappeared. *H. Dunkin, Horticultural Adviser, Warwickshire County Council.*

Salvia pseudo-coccinea.—Some little time ago, a Salvia was given me to name by those in charge of an exhibit by Messrs. Skelton and Kirby. I knew it was very close to Salvia coccinea, and in the course of my researches, found that it was originally named as above by Jacquin (*Collectanea*, Vol. 2, p. 302). There is a figure of it in *The Botanical Magazine* of 1828 (t. 2864), so that will give an idea when it first made its appearance in this country. The plant is a native of South America, and Humboldt found it in New Andalusia, of that country. The specimens figured in *The Botanical Magazine* were grown in the Glasgow Botanic Garden to which the plant was sent by Baron de Schack, from the Island of Trinidad. It differs from S. coccinea chiefly by growing very much taller. In Nicholson's *Dictionary of Gardening* it is reduced to S. coccinea var. pseudo-coccineas. The ovate leaves and scarlet flowers are much the same in both forms. *J. F.*

SOCIETIES.

ROYAL CALEDONIAN HORTICULTURAL.

THE ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on the 5th inst., Mr. W. J. Thomson, President, in the chair.

A lecture, illustrated by lantern slides, on "Some Recent Developments in the Theory of Forcing," was delivered by Professor J. M. F. Drummond, M.A., F.L.S., of Glasgow University. Professor Drummond referred to three modern developments, namely (1) treatment by ether, to a mixture of which with ordinary air the plants were exposed for from twenty-four to forty-eight hours previous to the usual forcing process; (2) hot water bath treatment, in which the plants were plunged in water at from 95° to 105° Fahrenheit, for from twelve to sixteen hours previous to forcing, and (3 control of the daily duration of the daylight. The treatment varied, of course, with the kind of plant, time of year, etc., but by either of the first-mentioned plans the flowering of plants could be advanced considerably when compared with the ordinary methods of forcing, and with a considerable saving in heating and other expenses. On the continent both forms of treatment had proved successful on a commercial scale. Under the third method of treatment it was found that by restricting the daylight to from ten to twelve hours daily, many plants flowered some weeks, or even months, before the normal time. The lecturer stated that our knowledge of the subject was still rudimentary, but by these experiments the prospect of much greater control over the time of flowering had been largely increased.

The exhibits were: Orchids, etc., from Mr. D. MARQUIS, Inveresk Gate, Musselburgh; Cyclamens, from Mr. D. EDGO, Balerno; Dawe's Champion Rhubarb, from Mr. J. W. SCARLETT, Sweethope, Musselburgh (to all of whom cultural Certificates were awarded); Cornus Bowhill Scarlet, from Mr. F. GLASS, Greyhouse, Murrayfield; Trillium grandiflorum, from Miss BARTY, Edinburgh; and Schizanthus, from Mr. J. A. SWORD, Inveralmond, Cramond. The prizes for spring bulbs were awarded to Mr. P. BELL, 4, Churchill Place, Edinburgh, and Mr. A. C. BEATSON BELL, 15, Comely Bank Grove, Edinburgh.

PAISLEY FLORISTS'.

THERE was an excellent display of flowering bulbs and pot plants at the Paisley Florists' Society's annual spring flower show on the 9th inst. The competitive section consisted of forty-seven classes, and while the number of entries were approximately the same as in 1926, the quality of the exhibits was of a higher standard. In the Hyacinth classes, Mr. DUNCAN GRAHAM, gardener to ALEX. ROBERTSON, Esq., excelled with three Hyacinths in a pot, and was awarded the "Highest Cultural Certificate of Merit" in addition to the first prize in its class. Mr. GRAHAM was also successful in the class for six Hyacinths, two pots of Daffodils (Van Waveren's Giant), three vases of Daffodils, two pots of Primula obconica, and one pot each of Cineraria grandiflora and Cineraria stellata.

Other prominent prize winners were Messrs. E. G. ROSS, JOHN HOUSTON, A. MACGREGOR, G. CAMPBELL, JOHN BROWN, JOHN BOWIE, T. HARVIE, Mrs. THOMSON, J. POPE and W. JACKSON.

Non-competitive exhibits were varied and interesting. The CORPORATION OF PAISLEY (Mr. I. M. Fleming, Superintendent) exhibited a choice collection of pot plants which occupied the platform, and Sir JOHN REID, Ardencraig, Rothesay (gr. Mr. John Davidson) staged twenty-five vases of Daffodils.

A small group of alpines was exhibited by Mr. D. W. KERR while Mr. JOHN A. HOLMES, Formakin, contributed a fine collection of flowering shrubs.

ROYAL HORTICULTURAL OF IRELAND.

APRIL 6 AND 7, 1927.—The Show held in the Covered Court, Earlsfort Terrace, Dublin (by kind permission of the Earl of Iveagh,) proved a very successful function, the glass roofed building, with its attractive Ivy-draped roof, being filled to the utmost limits of space with exhibits of excellent quality, public attendance on the two days being very large.

Dividing the schedule into five sections, under which judging was conducted, the first comprised twenty-three classes of alpines and plants generally. Mrs. ANDREW JAMESON, Sutton House, Co. Dublin (gr. Mr. P. Cullen), won Mrs. Butler's Challenge Cup with a dozen pans each of a different species, and also won Major Butler's Cup with twelve pots or pans not exceeding four inches diameter. For nine pots or pans the winners were Miss JOHNSTON, Bray, HARPER SCAIFE, Esq., Dalkey, and Miss ABBOTT, Santry, in the order placed. In the class for the best display of alpines on a table space twelve feet by four feet, competing for the Challenge Cup presented by Lady Greer, Mrs. BUTLER led, with Miss WYNNE, Avoca, Co. Wicklow, second, and Mrs. B. HAMILTON, Raheny, Co. Dublin, third. For a dozen hardy Primulas, distinct, the Farabond Cup was won by Miss WYNNE, Mrs. A. JAMESON, second, and Mrs. A. WEST, Kilcroney, Bray (gr. Mr. C. Coster), third.

Primula obconica made a great display, WISDOM HELY, Esq., Oakland, Rathgar (gr. Mr. J. H. Orr) having the best six, with LORD CLONCURRY (gr. Mr. W. Hall), and Major KELLY, Montrose, Donnybrook (gr. Mr. J. McDermott) placed as named. For Deutzias, huge plants in grand form, WISDOM HELY, Esq., F. V. WESTBY, Esq., Roebuck Castle, Dundrum (gr. Mr. F. Simmons), and Major KELLY, won respectively. For three pots of Mignonette Mr. HELY excelled, the Hon. GORDON CAMPBELL (gr. Mr. J. Cook), and Captain B. DALY (gr. Mr. J. Murtagh) being next best. For Freesias, six pots, the prizes were awarded, in order, to Sir FREDK. W. SHAW (gr. Mr. E. Thompson); Mrs. McCONNELL (gr. Mr. M. Carolan); and Madame FOTTRELL (gr. Mr. W. Taylor). For Arum Lilies, pots up to twelve inches diameter, Madame FOTTRELL excelled, with grand specimens, over WISDOM HELY, Esq. (also very fine). Mr. HELY showed six superb plants of Spiraea Queen Alexandra, and repeated his success with six Schizanthus, Major KELLY and Madame FOTTRELL following. Messrs. DRUMMOND'S LTD.'s first prize for twenty-four pots or pans of bulbous subjects was won by Major KELLY, with Madame FOTTRELL next. Six pots of Tulips, single, and the same number of double sorts, were unusually well shown by WISDOM HELY, Esq.; Hyacinths, too, were better than of late years, Major Kelly having the best dozen, distinct, and C. W. PARR, Esq. (gr. Mr. J. Keegan), the best six. For six bowls or pans of bulbs grown in fibre, distinct, the Rt. Rev. and Hon. B. J. PLUNKETT (gr. Mr. P. D. Reid), won first prize; Major KELLY second.

The Daffodil classes were not particularly well filled. In the premier class for thirty varieties, in competition for the Lord Ardilaun Perpetual Challenge Cup, there were two entrants, Mrs. WEST being the winner for the fourth year in succession; Miss E. B. HELY-HUTCHINSON, Seafield, Donabate, Co. Dublin (gr. Mr. J. Shekleton) coming second. These exhibitors were the chief winners in the other classes, with the addition of C. W. PARR, Esq: the Misses BIRD, Churchtown House, Dundrum (gr. Mr. J. Smith), and WISDOM HELY, Esq. Mrs. STEPHENSON, Cranford, Dublin, had the best dinner table decoration of Daffodils; Miss WYNNE, second; Mrs. McCONNELL, third.

Hardy cut flowers, shown in vases, made a brave display; for a collection of twenty-four, shrubs not excluded, exhibited in competition for Captain Riall's handsome Challenge Cup, Mrs. STEPHENSON excelled, the donor of the Cup being placed second, with F. V. WESTBY, Esq., third; conspicuous in Captain RIALL's collection were graceful branches of Acacia dealbata, which is so happy in the kindly Wicklow climate. For a collection of twelve kinds, the Misses BIRD, Mrs. A. JAMESON (gr. Mr. Osman), and C. W. PARR, Esq., won as placed, and for the collection of six kinds, Mrs. Richardson, Rosedale, Shankill; Miss Shacleton, Lucan; and Miss Wynne, were placed in the order named. Prizes presented by Messrs. Watson, Killiney Nurseries, Co. Dublin, for a collection of hardy flowering shrubs were won by Captain Riall (gr. Mr. T. Webster), Miss Hely-Hutcheson, and Major Kelly in the order named; while for a smaller collection, Sir Fredk. Shaw, Mrs. A. Jameson, and Captain Daly were the prize winners; and for six vases of Rhododendrons, G. Vaughan Hart, Esq., Stillorgan, was the only entrant.

Twelve blooms of Roses were exceedingly well shown by Mrs. A. West, but there was little to choose between her set and that from Wisdom Hely, Esq. There was a great display of hardy Primroses and Polyanthuses, the principal prize winners being Mrs. Butler, Miss Smyth, Captain Riall, Miss Rutherfoord, and Messrs. Parr and Vaughan Hart. Although but two exhibitors competed in a new class for Violets, much interest was evinced in it, the Challenge Bowl presented by Mrs. H. Bland, Abbeyleix, having been designed and made by Mr. Omar Ramsden, designer and maker of the King's Alms dish for the New York Cathedral, this being won by Mrs. A. West, Miss Rutherfoord being placed second.

Nineteen classes for fruits and vegetables completed the schedule. Exceptionally fine Newtown Wonder Apples were shown by Lord Cloncurry, Sir Fredk. Shaw and Chas. Martin, Esq. Pears, not so good, were best shown by E. D'Olier, Esq., Lord Cloncurry and H. E. Joly, Esq., while the leading prize winners in the vegetable section were Lord Cloncurry and Madame Fottrell.

The leading feature among non-competing displays was the collection of newer Rhododendrons, including alpine species from China and Thibet, contributed by the Marquis of Headfort, the President (gr. Mr. W. E. Trevithick), all lifted from the open as growing at Headfort House, Co. Meath. For this a Gold Medal was unanimously awarded, and as the display was considered the best amateur exhibit of rare plants or flowers it further received the Silver-Gilt Medal presented by *The Gardeners' Chronicle*. A Gold Medal was awarded to Mr. J. Lionel Richardson, Waterford, for a remarkably fine stand of Daffodils, embracing the choicest and newest varieties. Silver-Gilt Medals were awarded to Messrs. Watson, Ltd., The Killiney Nurseries, for a pretty group in which colonies of Koster's Orleans Polyantha Rose formed a striking feature, and for a fine group from the Rt. Rev. and Hon. B.J. Plunkett, St. Anne's, Clontarf, the latter having colonies of Bilbergia nutans and Veltheimia viridiflora on a groundwork of Anemone apennina, with flowering shrubs above. A choice collection of foliage and flowering plants from the Ballsbridge Nurseries, Dublin, set up by Messrs. Chas. Ramsay and Son, received a Silver Medal. Bronze Medals were awarded to the Hon. Mrs. Chas. Guinness, for a collection of splendidly-grown Cyclamens, and to Mr. W. H. Odlum, Ardmore, Bray, for a similar set; Miss Layng, of Cork, received a Bronze Medal for a miniature model garden.

FALMOUTH SPRING SHOW.

This show, which was held at the beautiful Gyllyngdune Gardens on April 6 and 7, was opened by His Excellency the Governor of Kenya Colony, Sir Edward Gregg, K.C.V.O., C.M.G.

This event of the Cornish Riviera emphasises more than any other western show the possibilities of the west, which is a veritable paradise for the plant lover. Choice plants are grown in creeks and other favoured spots where frost is practically unknown.

The trade was represented by exhibits from Messrs. R. Veitch and Son, Exeter, Messrs. Ruse and The Devon Rosery. Narcissi were well shown by Mr. J. C. Martin, Truro, and Messrs. Barr and Sons, King Street, Covent Garden, London.

Other trade exhibits included a rockery by Messrs. Maxwell and Beale, with many charming dwarf alpines and Heaths; Narcissi, by Mr. W. J. Barr, Bournemouth, and general nursery stock by Mr. W. Davis, Falmouth, Good honorary exhibits were put up by J. Pool, Esq., Falmouth, and Mrs. Howard Fox, Rosehill, Falmouth.

Competition was very keen in the class for flowering shrubs, the winning collection of Mrs. N. Colborne, Bosahan, included Clematis indivisa, Datura sanguinea, and Drimys aromatica, whilst those sent by Mrs. C. Hert, Trebah, included Exochorda grandiflora, Erica melanthera and Grevillea Priessii; the third prize group by Mrs. M. C. Rogers, contained the sweetly scented Daphne indica and Prostranthera.

Another feature of the exhibition was the exhibits of the Falmouth Corporation, which included fine Cinerarias, Primulas, Cyclamens, stove plants and Orchids.

Commercial growers of Narcissi were well-represented in the classes for eighteen bunches and twelve bunches respectively. The Park Farm, Truro, won the first prize easily with splendid bunches of Osprey, Firetail, Herbert Smith, Horace, Medusa, Golden Emperor and The President; Mr. F. G. Lawson was second.

The other Daffodil classes were better filled than ever before, and here Mr. J. H. Morris was the outstanding exhibitor, obtaining the first place in each class. In addition to numerous seedlings, Mr. Morris showed well-grown examples of Hera, Pax, Firetail, Tenedos, Miss Willmott, Herbert Smith and Dauchenel, the last-named having an immense trumpet.

A shrub novelty of the show was Petrea volubilis, with beautiful blue flowers, shown by Miss Daubuz, of Killio, Truro. The same exhibitor showed some excellent blooms of Magnolia Campbellii.

Any description of Falmouth show would be incomplete without a reference to the extraordinary exhibits of Camellias: the first prize for Camellias was won by Miss Daubuz, with good examples of C. reticulata, C. anemonaeflora, C. Countess of Orkney, C. Fatima, etc. Other flowers well shown were Anemones, Tulips, Wallflowers, Kurume Azaleas and Freesias. The premier award for Schizanthus went to Falmouth Corporation (gr. Mr. Gill).

The first prize in the largest class for Rhododendrons was won by R. Barclay Fox, Esq., with good blooms of R. intricatum, R. Glory of Penjerrick, R. Kingianum, and a contrast between the huge R. sino-grande and the small Williamsianum. Mrs. Hert, of Trebah, was second with Pride of Penjerrick, Beauty of Tremough, Bodartiana, R. fulgens, etc. With glorious weather and a charming setting, the show attracted a record attendance.

KILMARNOCK SPRING SHOW.

The fifth annual bulb show of the Glenfield and Kennedy Horticultural Society was held at Kilmarnock on Saturday, the 2nd inst. A brilliant display of Hyacinths, Tulips and Daffodils was forthcoming. The entries, which numbered five hundred, created a new high record. Competition was particularly keen in the Tulip section and the large classes of Trumpet Daffodils, where the exhibits in each ranged from eleven to thirteen bowls or pots.

There were sixty-six classes in the prize schedule, forty of which were open to all. The three Challenge Cups offered to the competitors with the highest aggregate number of points were awarded as follows:—Ferguson Cup for Hyacinths, to Mr. W. Winning; Craig Cup for Tulips to Mr. William Watson; and the Crawford Cup for Daffodils to Mr. James Cochrane. Other winners of first prizes were Messrs. J. Dodds, R. Brown, J. Craig, I. Boyd, D. Drummond, J. Highet, C. Barclay, James Smith, R. Wilson, J. Gilmour, C. Roxburgh and J. Currie.

Mr. James Smith, a local amateur, staged an exhibit of forty newer varieties of Daffodils in pots, which was the most attractive feature of the show. The outstanding varieties were Beppy, Liberty, Solfatare, Lucinius, Mrs. J. H. Krelage, Empire, Carran, Gold Nut, Noble, Golden Beauty, Lady Moore, Ivorine, Bath's Flame and Gipsy Queen.

Modern types of Daffodils were also prominent in the exhibit of Mr. J. Montgomery Crawford, Highfield Bulb Farm, Barassie. The flowers were staged in vases, and the best specimens included Santa Maria, Decorator, Tenby, Gaiety, Golden Gate, Spring Glory and Incomparabilis varieties Brilliancy, Elaine and Stella.

The Scottish Wholesale Co-operative Society's Nurseries, West Kilbride, exhibited a choice collection of Azaleas, Hyacinths, Tulips, Daffodils, etc., and other flowers.

MORAY AND NAIRN FORESTERS'.

There was a large attendance of members at the annual general meeting of this Society, which was held in Forres, Morayshire. Mr. John Clark, head forester to the Duke of Richmond and Gordon, on the Gordon Castle Estates, occupied. the chair.

The Secretary (Mr. C. Asher, Gordon Castle) submitted an annual report giving an admirable account of the year's work done by the Society. By the kind permission of the proprietors, the estates visited during the summer months were: Dunphail, Blackhills, Aberlour, and Cathay House, Forres; there was also the annual picnic to Nairn—a most successful outing. During the winter, meetings were held in Elgin and Forres respectively, when the subjects discussed included: "Forest Insects," by Mr. T. McEwan; "Light in Relation to Plant Growth," by Mr. E. S. Grant; "Humus as a Soil Improver," by Mr. H. A. Brookman; "The Forest Organism," by Mr. A. Watt; and "Observations by a Timber Merchant," by Mr. A. Merchant. Mr. E. S. Grant, treasurer, submitted a balance sheet, which showed a substantial increase in the Society's funds.

Both report and balance sheet were considered highly satisfactory.

The election of office-bearers for the ensuing year was then proceeded with. Mr. E. S. Grant, Altyre, was appointed President in succession to Mr. Clark, Gordon Castle. Mr. Grant, in accepting office, paid warm tribute to his predecessor and thanked the members for the honour conferred on him. Mr. F. Machray, Dunphail; Mr. A. Morrison, Brodie; and Mr. C. Bain, Burgie, were appointed vice-presidents. Mr. C. Asher, Gordon Castle, was re-elected secretary. Mr. A. Ross, Forres, was elected treasurer; Mr. J. Robbie, Monaughty as Librarian, and Mr. J. McEwan, Teindland, as editor of the *Journal*. The management Committee for the ensuing year consists of Messrs. McEwan, Chalmers, Robbie, Sutherland, Feaks, Clark, Innes, McKenzie, Stewart and Noble.

In his valedictory speech, Mr. Clark, the retiring President, spoke highly of the work done during the past year, and particularly mentioned how deeply they were indebted to proprietors for allowing them to visit their estates, and the great kindness they had received during these visits. He also warmly thanked those who had so willingly lectured to them during the winter months. Hearty thanks were awarded Mr. Clark for his successful presidency.

BRITISH CARNATION.

The Floral Committee of this Society visited Messrs. A. F. Dutton's establishment at Iver, on April 11, to inspect the new Carnation Mrs. A. J. Cobb growing in the raiser's nursery, and awarded it the highest possible award, a First Class Certificate; eighty-eight points were awarded, or three over the necessary number.

Lady Margaret Boscawen (Messrs. Lowe and Shawyer's, of Uxbridge) was also inspected, and received a First Class Certificate, securing eighty-five points.

Mrs. A. J. Cobb was also given an Award of Merit by the B.C.S. and R.H.S. on Tuesday the 12th inst., while W. H. Page, raised by Mr. W. H. Page, of Hampton, Middlesex, gained an Award of Merit on the same date.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

Mr. T. R. Butler presided at the monthly meeting of this Society, held at the R.H.S. Hall, on Monday, April 11. Thirteen new members were elected. Five members withdrew interest from their deposit accounts amounting to £14 6s. 8d. The death certificates of two deceased members were produced, and the sum of £51 11s. 5d. was passed for payment to their respective nominees. The sick pay for the month on the Ordinary side was £137 16s. 2d., and on the State side £139 2s. 6d.; maternity claims amounted to £13.

The sum of £31 15s. 0d. was made in grants to six members for extra benefits from the State Section, and nine other cases were considered.

The Secretary, Mr. A. C. Hill, 35, Alexandra Road, West Kensington Park, W.14, stated that all reports and balance sheets had now been sent out, and persons interested might receive a copy on application to him.

TAMAR VALLEY COMMERCIAL SHOW.

Following the lead given by the growers in West Cornwall and the Isles of Scilly, who have recently held their fourth Spring Show, the market gardeners in the Tamar Valley have proceeded on similar lines and the first Spring Show was opened at Plymouth on Wednesday, the 30th ult.

The season, so far as outdoor flowers are concerned, has been rather late this year, and this accounted for the large number of entries received from the West Cornwall district, as the bulk of the crop there was not forward enough for the Penzance Show at the beginning of March. The exhibits, which consisted for the main part of Narcissi, were more numerous than the most optimistic of the show promoters expected, and the capacity of the two large halls was taxed to the limit. The trade exhibits were fully representative; nurserymen, florists, horticultural sundriesmen and firms who specialise in the various kinds of packages for fruits, flowers and vegetables had stands around the sides of both halls, while the competitive exhibits were displayed on two stagings down the centre and in the ante-room, even the staircases being utilised.

Educational exhibits included one from Long Ashton, displaying the various problems connected with Strawberry culture; an exhibit from Seale-Hayne Agricultural College on insect and other pests of the various flowering bulbs; while the Agricultural Education Departments of both Devon and Cornwall put up comprehensive stands dealing with the work done in the two counties. The show was opened on the first day by the Lord Lieutenant of Cornwall (J. C. Williams, Esq.), while Mrs. J. E. C. Boolds performed the opening ceremony on Thursday.

The attendance on both days was very satisfactory, and the show may be said to have proved an unqualified success from all points of view. Great credit is due to Mr. J. E. C. Boolds who, in his capacity as Chairman of Committee, threw himself whole-heartedly into the work, and so imbued his colleagues with his enthusiasm that the result was almost a foregone conclusion from the commencement. Mr. C. A. Hall, of Saltash, made an excellent Secretary, while the two County Horticultural Superintendents, Mr. H. W. Abbiss (Cornwall) and Mr. D. Manning (Devon), assisted as Organising Secretaries. The success of the show makes it almost a certainty that it will become an annual affair, and as such it cannot but be a valuable asset to the flower- and fruit-growing industry of the Tamar Valley.

A full programme of addresses and conferences on the afternoons of both days was carried out, addresses being given by Messrs. G. H. Hollingworth (Agricultural Organiser for Gloucestershire), and Frank May of Cheltenham, on "A Successful Growers' Co-operative Market," and by Messrs. Sidney Cooke, St. Nicholas Market, Bristol, and B. L. Wolf, Ministry of Agriculture, on "Packing and Marketing of Produce," on the Wednesday afternoon. The Thursday was taken up by a meeting of the Tamar Valley Growers' Association with representatives of the Railway Companies, when matters of interest were fully discussed, followed by an address by Captain R. Wellington (Chairman of the Fruit and Vegetable Committee, Devon N.F.U.), Messrs. F. M. Jesty and C. Hoskin (County Secretaries for Cornwall and Devon Branches of the N.F.U.) on "How the N.F.U. can assist the Grower." The inclusion of addresses and conferences on topical subjects in connection with a show of this description adds immensely to its educational value, and is a matter which could be extended to similar shows in other parts of the country.

The exhibits were naturally strongest in the Commercial Section, but there was a fair number of amateurs who showed some very fine specimens. Among others in this section were the following: Captain H. G. Hawker, Ermington, who took first and special prizes in the class for pot plants, and also showed some fine vases of Narcissi; Mrs. J. E. C. Boolds led for table decoration; while the first prize for bottled fruits was carried off by the High Bickington Women's Institute, with Miss Barberry, Camborne, and Mrs. Doney, Bere Alston, second and third respectively.

It is a noteworthy fact that although several of the Narcissus classes were open to amateurs yet the prizes were won entirely by commercial growers, indicating the keen interest now being taken by the latter with reference to the presentation of flowers to the best advantage.

An exceptionally fine feature of a really fine show was the Educational Section. Several collections of new and recently introduced varieties were staged, and these aroused very keen interest on the part of the visitors. Lectures and conferences on subjects connected with the industry were arranged for both afternoons and bunching and tying competitions were conducted in the evening.

A show of this kind cannot fail to be of benefit to the commercial and amateur growers of spring flowers as well as enabling the urban population to inspect the produce of the Tamar Valley and other parts of Cornwall and Devon.

SPALDING BULB GROWERS'.

The annual Daffodil show of the Spalding Bulb Growers' Association was held in the Exchange Hall, Spalding, on Saturday, April 9, and the exhibition surpassed that of last year, both in quality and quantity.

The most successful exhibitor was Mr. R. D. Wellband, one of the oldest growers at Spalding, who won the Spalding Bulb Company's Cup for the best collection of Daffodils in the show; the Collingridge Cup; the Gerald Da Costa Cup, and the Spalding Bulb Growers' Association's Cup, in addition to one presented by himself, whilst he also carried off numerous first and second prizes.

The Gold Medal for the best single specimen went to Messrs. J. T. White and Son, of Spalding, for a variety named John Evelyn. Messrs. J. T. White and Son and Messrs. H. White and Sons, of Spalding, carried off the awards in the section for boxes of blooms packed for market. Mr. F. Baxter was awarded the Bert Baxter Cup for a remarkable display of Daffodils. Mr. O. W. D'Alcorn, Mr. B. Baxter and Mrs. H. M. Bates, all of Spalding, were among other successful exhibitors. An outstanding feature at the show was the Spalding Bulb Company's stand, which was awarded a Gold Medal.

The following were the awards in the open classes:—Spalding Bulb Company Cup, for the best exhibit in the show, Mr. R. D. Wellband; William Hardy Cup, Messrs. H. W. White and Sons; J. Collingridge Cup, Mr. D. R. Wellband; J. Swift Cup, Messrs. J. T. White and Son; R. D. Wellband Cup, Mr. R. D. Wellband; Gerald Da Costa Cup, Mr. R. D. Wellband; Bert Baxter Cup, Mr. F. Baxter; Spalding Association Cup, Mr. R. D. Wellband; Gold Medal, for the best new variety, Messrs. J. T. White and Son; Gold Medal, for the best trade stand, Spalding Bulb Company.

Collection of Daffodils: First, Mr. R. D. Wellband; second, Messrs. J. T. White and Son. Trumpet Daffodils: First, Messrs. J. T. White and Son; second, Mr. R. D. Wellband. Short-cupped Daffodils: First, Mr. R. D. Wellband; second, Messrs. F. Brown and Son. Small-cupped Daffodils: First, Mr. R. D. Wellband; second, Mr. O. W. D'Alcorn. Box of Trumpet Daffodils: First, Messrs. H. W. White and Sons; second, Messrs. J. T. White and Son. Box of Short-cupped Daffodils: First, Messrs. J. T. White and Son; second, Messrs. H. W. White and Sons. Box of Small-cupped Daffodils: First, Messrs. H. W. White and Sons; second, Messrs. J. T. White and Son. Bunch of Trumpet Daffodils: First, Messrs. J. T. White and Son; second, Mr. O. W. D'Alcorn. Bunch of Short-cupped Daffodils: First, Messrs. J. T. White and Son; second, Mr. O. W. D'Alcorn. Bunch of Small-cupped Daffodils: First, Messrs. J. T. White and Son; second, Mr. B. Baxter. Collection of Daffodils, limited to members of the Association owning three acres of bulb land: First, Mr. F. Baxter; second, Mr. R. Pocklington. Collection of New Varieties: Mr. R. D. Wellband. Single Specimen of a New Variety: First, Messrs. J. T. White and Son. Bowl of Daffodils: First, Mrs. H. M. Bates; second, Messrs. J. T. White and Son.

INSTOW FLOWER SHOW.

The sixth of the series of spring shows organised by Miss K. Hinchliff, of Worlington House, was held in the Rifle Hall, Instow, North Devon, on the 30th ult. The exhibition was held on the usual lines, that is to say, no prizes were offered and none of the exhibits were judged. In extent the display was larger than on any previous occasion, and the attendance was also much greater than in previous years, as people in the surrounding district are beginning to appreciate the fine displays provided.

In the section for outdoor-grown Daffodils, each exhibitor displays his or her blooms in one group, only one vase of a variety being allowed, although there may be a number of blooms in the vase. The effect produced by this method is much better than is usually seen and also there is much less repetition. There were two outstanding blooms on this occasion, one, a magnificent example of Narcissus Fortune, four-and-one-eighth inches across, exhibited by Mr. Seymour Cobley, and the other a particularly fine example of Beersheba, just over five inches across, staged by Miss Hinchliff.

Mr. Cobley put up a splendid group of thirty-six distinct varieties, mostly new seedlings or varieties not yet in commerce. Needless to state, this exhibit was of very great interest to Daffodil specialists. It included flowers of Daphne, ornatus maximus, Pluto, Nellie, Croesus, Robespierre, Hopeful, Medusa, Lanarth, and Bridget. The Rev. T. Buncombe, of Black Torrington, presented a representative collection of twenty-seven varieties, many of them his own seedlings, but including such fine named sorts as Macebearer, Eve, Duchess, Victory, Morning Glory, The Dame, Glorious and Cicely.

As her garden is close to hand, Miss Hinchliff was able to put up a large group of nearly sixty varieties of Daffodils, including Chaucer, Barcorolle, Virgil, Black Prince, Croesus, Queen Sophia, Flame, Mascotte and Dosoris; her principal Leedsii varieties were Irish Pearl, Helga and Lord Kitchener, while conspicuous among the Trumpet varieties were Burgomaster Max, Lady Primrose, Emir, Mrs. Dodd, Mrs. R. Sydenham, Gwendal and Golden King. In addition, this group contained beautiful flowers of Buttercup and a particularly fine vase of Grand Monarque. Mrs. Dodd, Windycroft, contributed several vases of Tazetta varieties, notably Redchief and Jaune a Merveille, associating these with the larger flowers of J. H. Krelage, Lord Kitchener, Noble, Alice Knights and Golden Bell.

Mrs. Hinchliff, Hillsleigh, also exhibited Daffodils and other cut flowers, the latter including various Anemones and the wild yellow Tulipa sylvestris. Her principal Daffodils were Mermaid, Southern Gem and Firebrand. Mrs. Moyses, of Weare Gifford, showed a few well-grown Daffodils and various spring flowers, while Miss White-Atkins and Mr. H. Miles were other exhibitors, the last-named showing

Violets in very fine form. Coloured Primroses were well-shown by Mrs. L. White-Atkins, Mr. D. Hoyles and Miss Hinchliff, the latter exhibiting fine blue flowers of the St. Asaph strain.

Groups of plants in pots, composed chiefly of Cinerarias, Pelargoniums and Richardias, came from Mrs. Hinchliff, Mrs. Critchley-Salmonson contributed Azaleas and Primulas, and Mr. Miles showed several varieties of Lachenalias. Lady Chichester sent Freesias and Cyclamens, and Mr. T. Jennings was also a prominent exhibitor of the last-named flower. Viburnum Carlesii and numerous Heaths were the principal features in a group of flowering shrubs exhibited by Miss White-Atkins, while Miss Hinchliff showed a number of Skimmias.

Mrs. Lane, Miss Rouse and other ladies exhibited bulbs grown in fibre, thus providing a very interesting little section that showed how well bulbs may be grown in the home.

Comparatively few fruits were exhibited, but Col. Evat's dish of Belle de Pontoise Apples arrested attention, and considerable interest was displayed in the fruits of Bramley's Seedling shown by Miss Hinchliff and the Rev. Stevens-Guille, as well as in the examples of Newton Wonder and Annie Elizabeth sent by Mr. H. Miles, and creditable specimens of several varieties contributed by Nurse Johns.

A small admission fee is charged at this exhibition, and all the profits are handed over to the Instow Rifle Club, which has already benefited to the extent of about £25.

Obituary.

Harry Alderman.—We learn with regret that Mr. Harry Alderman, gardener to the Hatfield family at Morden Hall, Morden, died on Monday, April 4. For nearly half-a-century Mr. Alderman was one of the leading gardeners in mid-Surrey and took part in all horticultural activities in the Wimbledon and Morden district. His kindly earnestness in all he undertook and the readiness with which he assisted young and enthusiastic gardeners will be remembered by those who knew Wimbledon when fine gardens and estates were owned there by the Peek, Schlusser, Devas and Czarnikow families. Mr. Alderman had his first experience of gardening under his father at Woodhayes Gardens, Wimbledon, and after gaining knowledge at various establishments he returned to Wimbledon to fill a post in the gardens at Canizaro House, whence he obtained the appointment of gardener to the late Mr. Hatfield at Morden Hall, a position he filled under other members of the Hatfield family up to the time of his death, a period covering in all forty-four years. The funeral at Morden Parish Church on April 9 was largely attended by relatives, representatives of various horticultural and other societies to which the deceased had belonged, and by numerous horticulturists who had been associated with him at some period of his seventy-three years of life.

W. Paterson.—We regret to learn of the death of Mr. W. Paterson, who passed away on April 5. He had been gardener to the Earl of Lanesborough, Swithland Hall, Loughborough, for the past twenty years. Mr. Paterson commenced his gardening career as an apprentice in the gardens at Terraughtie, Kirkcudbrightshire, and gained further experience at Eden Hall, Cumberland; Lazonby Hall and Castlesteads, Brampton, Carlisle; and afterwards was general foreman at Kidbrooke Park, Sussex. His first position as head gardener was with Mr. Jos. Pease (now Lord Gainford), Nunthorpe Hall, Middlesborough. Mr. Paterson was a very successful exhibitor in the Midlands, and his services as a judge were in great demand. He is survived by a widow, two daughters and four sons; three of the latter are following their late father in the gardening profession.

Professor C. S. Sargent.—Professor Charles Sprague Sargent (see pp. 257 and 259) had long since passed the human expectation of life, for he died on the eve of his eighty-third birthday: none the less, his death, which was barely noticed in the American daily press, found his friends here unprepared. To Sargent arboriculture and the Arnold Arboretum were the *Alpha* and *Omega* of his life. He assisted at the birth of the Arboretum, nursed it through the early stages, saw his child grow to adolescence and before his death had shaped its destiny in what none can doubt was the right direction. Sargent was in the singularly happy position of being able to gratify the ruling interest of his life—the study of trees, but the gratification of it has brought nothing but good to the cause of arboriculture and its practical application, not only to forestry work, but to all tree planters who care to profit by it. In the main, the old saw that men plant trees for their successors, not for themselves, is true enough, but at Boston Sargent was fortunately spared to watch the development of the work he initiated fifty-three years ago, and guided so ably since. Half-a-century may be nothing in the life of some giants of the forest, but there is a host of evergreen and deciduous trees and shrubs which show their quality long before that period has elapsed, and these have grown up under Sargent's hand. It is not generally known that it was to Sargent's initiative that horticulture owes what may be termed the practical as distinct from the purely botanical side of the exploration of the Western Chinese flora, of which Delavay was the greatest exponent. It is true that in a sense the two are inseparable, but up to the closing years of last century botany had benefited far more than horticulture or arboriculture from Chinese exploration. In the preface to the first volume of *Plantae Wilsonianae*, Sargent has recorded that in 1897 he advised the then head of the firm of Messrs. J. Veitch and Sons to send a collector to Hupeh to collect the seeds of Augustine Henry's discoveries, and make additional observations on the flora of the region. In the result, Mr. E. H. Wilson was chosen to carry out Sargent's suggestion, and two years later began the series of journeys which have proved so fruitful for arboriculture, horticulture and botanical science. There must be many who recall a feeling of disappointment that after Wilson's initial journeys for Veitch, it was learned that the explorer's services were to be lost to this country, as he had accepted a commission to undertake further exploration in Western China for the Arnold Arboretum. But any initial sense of disappointment was soon set at rest, for science knows no boundaries, and Sargent took care that the world should share in the many brilliant discoveries Wilson made in the two expeditions undertaken on Sargent's initiative in 1906-1909 and 1910-1911. That, however, was not the end of it, for under Sargent's editorship the record of the arboricultural side of the collection was set down with remarkable celerity in *Plantae Wilsonianae*. The cultivation of Chinese trees and shrubs, too, in the, to us, rigorous climatic conditions prevailing in Massachusetts, has been of infinite practical value to growers in general. In the pursuit of his hobby, Sargent travelled far and wide, and though exotic flora had as great an attraction for him as it has for naturalists in general, he realised the extent and richness of the tree resources of his own country, spent five years in a systematic survey of it, and gave the result to the world in *The Silva of North America*. Sargent, who came of old Gloucestershire stock, had many friends in this country, and though he was not often able to visit England, always showed keen interest in the welfare of the many plants his characteristic generosity led him to send here. He was a foreign Fellow of the Linnean Society.

TRADE NOTE.

Readers requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning *The Gardeners' Chronicle.*

ANSWERS TO CORRESPONDENTS.

Carnation Leaves Diseased.—*C. G.* The leaves of your Carnations are not attacked by Leaf-rot (Pseudodiscosia), but by the disease known as "Fairy Ring of Carnations," caused by the fungus Heterosporium echinulatum. In watering the plants, be careful not to wet the foliage.

Chinese Cabbage.—*Sharpthorne.* This vegetable should be grown much in the same way as Cos Lettuce. The seeds should be sown now in drills made eighteen inches apart, and the seedlings thinned to fifteen inches apart in the rows. There are several varieties, but all require very similar treatment. Grow the crop for preference on a south border in soil that has not been freshly manured.

Hippeastrum (Amaryllis) Bulbs.—*W. S.* One or two of the scale leaves inside the bulbs were slightly decayed. You do not indicate exactly what trouble you are experiencing with your plants; the two bulbs received appear to be normal. We shall be glad to examine further specimens if you care to send them.

Laurel Hedge.—*J. B.* The hedge should be pruned at once. Cut the growths hard back, using a sharp pruning knife or a pair of secateurs, and prune the hedge again during August or September. Garden shears should not be used in pruning a Laurel hedge, as many of the leaves would be cut in half and the appearance be unsightly.

Melon Seedlings Failing.—*H. H.* The Melon seedlings are attacked by a fungus, Fusarium species. This fungus exists as an infection in some soils and must have been present in the compost used for raising the seedlings, unless the water supply is taken from a pond or stream, in which case it might be contaminated. In future, you should raise your seedlings in soil sterilised either by heat or by formaldehyde. It should be an easy matter to improvise a simple baking apparatus, and arrange for the soil to be heated to a temperature of 206°F. for two or three hours. If you select the formaldehyde treatment the soil should be saturated with a two per cent. solution of this compound (one part forty per cent. formaldehyde in forty-nine parts of water). The saturated soil should be covered with sacks for forty-eight hours and then spread out to dry on a clean surface under cover. When the soil ceases to smell of formaldehyde it is safe to use.

Names of Plants.—*C. F.* Anemone coronaria. *A. E. J.* Psoralea pinnata. ***A. E. F.*** 1, Dimorphotheca species; send better specimens; 2, Allium neapolitanum; 3, Kleinia articulata; 4, Aloe arborescens variety.

Vegetables for a Family of Seven.—*Digger.* On an average, a rood of ground is required to produce a supply of vegetables for four persons; therefore, in your case about two roods would be necessary. Much, however, will depend on the situation of the garden, the nature of the soil, and the attention and skill of the cultivator. What may be termed luxury crops will require more ground and greater attention than the commoner vegetables. Intensive cultivation, inter-cropping, and a well-considered scheme of rotation will give a greater bulk of produce than ordinary methods.

Violet Leaf Blotch.—*A. M.* The Violet leaves are suffering from an attack of Ascochyta violae, generally known as Violet Leaf Blotch. An excess of moisture, both at the roots and in the surrounding atmosphere, favours the disease, and it is always desirable to remove affected foliage directly the disease is noticed, otherwise the trouble will spread rapidly; indeed, the spores may be distributed readily by watering and syringing the plants. A light sprinkling of lime and sulphur on affected leaves will help to arrest the disease.

Communications Received.—H. S.—J. F.—W. H. D.—M. W.—K. W.—H. E. D.—W. A.—C. B. W.—C. N.—M. E. M.—G. H. D.—H. M.—G. R. A. M. J. K.—M. W.—W. F. S.—F. R. D.—C. F. C.

MARKETS.

COVENT GARDEN, Tuesday, April 19th, 1927.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz.	10 0–12 0
—elegans	10 0–15 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.	30 0–42 0
Asparagus plumosus	12 0–18 0
—Sprengeri	12 0–18 0
Aspidistra, green	36 0–60 0
Asplenium, doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Azaleas, various, 48's, each	4 6—7 6
— — 60's, per doz.	21 0–24 0
Boronia megastigma, 48's, per doz.	36 0–48 0
Cacti, per tray —12's, 15's	5 0—7 0
Cinerarias, 48's, per doz.	12 0–15 0
Cyclamens, 48's, per doz.	18 0–21 0
Crotons, doz.	30 0–45 0
Cyrtomium	10 0–25 0
Daffodils, 48's, per doz.	9 0–12 0
Erica melanthera, 48's, per doz.	24 0–30 0
—60's „	12 0–15 0
—72's „	8 0—9 0
Genistas, 48's, per doz.	21 0–24 0
Heliotropes, 48's, per doz.	15 0–18 0
Hyacinths, 48's, 3's, per doz.	15 0–18 0
—60's, per doz.	10 0–15 0
Hydrangeas, pink, 48's, per doz.	24 0–36 0
—blue, 48's, per doz.	30 0–36 0
—white, 48's, per doz.	24 0–30 0
—larger sizes, each	4 0—5 0
Marguerites, 48's, per doz.	21 0–24 0
Mignonette, 48's, per doz.	18 0–21 0
Nephrolepis in variety	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	30 0–48 0
—60's	15 0–18 0
Pteris, in variety	10 0–15 0
—large, 60's	5 0—6 0
—small	4 0—5 0
—72's, per tray of 15's	2 6—3 0
Roses, Polyanthas, 48's, per doz.	18 0–24 0
Spiraea, white, 48's, per doz.	21 0–24 0
—pink, 48's, per doz.	27 0–30 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun	8 0—9 0
cuneatum, per doz. bun.	7 0—9 0
Anemone fulgens, per doz.	3 0—4 0
Asparagus plumosus, per bun., long trails, 6's	2 0—2 6
med. sprays	2 0—3 0
short „	0 9—1 3
—Sprengeri, bun. long sprays	2 0—2 6
med. „	1 6—2 0
short „	0 6—0 9
Camellias, 12's, 18's, per box	2 0—2 6
Carnations per doz. blooms	3 0—4 0
Croton leaves, per doz.	1 9—2 6
Daffodils, per doz. bunch—	
—Emperor	4 0—5 0
—Grandee	3 0—4 0
Fern, French, per doz. bun.	10 0–12 0
Forget-me-not, per doz. bun.	4 0—8 0
French Flowers—	
—Anemones, mixed, doz. bun.	5 0—6 0
—Myrtle, green, per doz. bun.	1 6—2 0
—Ranunculus—	
—double scarlet	4 0—5 0
—Violets, Parma, per bun.	4 0—5 0
—Stock, double white, per doz. bun.	4 0—6 0
Heather, white, per doz. bun.	6 0—9 0
Iris, Spanish, per doz. bloom—	
— blue	2 0—3 0
— yellow	2 6—3 0
— mauve	2 0—2 6
—white	2 6—3 0
Lilac, white, per doz. stems	4 0—8 0
—mauve, per doz. sprays	5 0—6 0
Lilium longiflorum, long, per doz.	3 0—4 0
—short, doz. blooms	2 6—3 0
Lily-of-the-Valley, per doz. bun.	24 0–30 0
Narcissus, per doz. bunch—	
—ornatus	2 0—3 0
—Elvira	5 0—6 0
—Grand Monarque,	3 0—3 6
—Horace	4 0—5 0
—Barrii	3 0—3 6
—Lucifer	3 6—4 0
—White Lady	2 6—3 0
Orchids, per doz.	
—Cattleyas	24 0–36 0
—Cypripediums	6 0—8 0
Primroses, per doz. bun.	0 6—1 0
Richardias (Arums), per doz. blooms	6 0—8 0
Roses, per doz. blooms—	
—Columbia	4 0—5 0
—Richmond	3 0—5 0
—Madame Butterfly	3 0—5 0
—Golden Ophelia	3 0—5 0
—Mrs. Aaron Ward	2 6—3 0
Smilax, per doz. trails	7 0—8 0
Star of Bethlehem (Allium), per doz. bun.	2 6—3 0
Sweet Peas, in variety	9 0–18 0
Tulips, per doz.	
—single white	9 0–15 0
— — yellow	12 0–15 0
— — scarlet	9 0–12 0
— — pink	15 0–21 0
—Darwin, red,	18 0–24 0
— — pink	18 0–24 0
— — mauve	15 0–18 0
Violets, per doz. bun.	3 0—4 0

Remarks.—Supplies were sufficient to meet all requirements during Easter week. With the exception of Richardias (Arums) and best Emperor Daffodils, prices showed very little change from those of the previous week. Carnations, Roses and Lilium longiflorum were all in first-class condition and prices for these flowers were exceptionally low for the Easter trade. Gladioli are the newest subjects in this department; Blushing Bride and Peach Blossom are the varieties at present to hand.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus—	
—Cavaillon	1 2—1 4
—Lauris	2 0—4 0
Beans, Forced—	
—Special	1 0—1 6
Beans, Madeira—	
—Finest	3 0—4 0
Beets, per cwt.	5 0—6 0
Belgian Chicory, per lb	0 5—0 6
Cabbage, per doz.	2 0—2 6
Carrots, per ½-bag	4 0—6 0
Cauliflowers—	
—English, per crate	4 0—7 0
—St. Malo, crate	3 0—5 0
Celery, fan	2 0—2 6
Cucumbers, doz.	3 0—5 0
—Flats, 3, 3½, 4 doz.	12 0–16 0
French Endive, per doz.	— 3 0
Leeks, per doz.	2 0—2 6
Lettuce, round, per doz.	1 0—2 6
—long	4 0—6 0
Mint, forced, per doz.	3 0—6 0
Mushrooms	
—cups	1 9—2 6
—Broilers	1 3—1 9
Onions—	
Valencia	11 0–12 0
—Egyptian	— 13 0
Parsnips, per cwt.	4 6—5 6
Potatos—	
King Edward—	
ton	£9/10£10
—others, ton	£6 £7 10
Potatos, New—	
—Guernsey	0 6—0 7
—Canaries, case	8 0–16 0
—Azores	16 0–18 0
Radishes, per doz.	1 6—3 0
Rhubarb, natural	3 0—4 0
Savoys, per tally	8 0–12 0
Seakale, per punnet	1 0—1 6
—natural, per ½ sieve	8 0–10 0
Tomatos, English—	
—pink, per lb	2 0—2 6
—pink and white, per lb.	2 0—2 6
—white, per lb.	— 1 6
—blue, per lb.	— 1 6
—Canary Island	16 0–18 0
Turnips, per cwt.	4 0—5 0

Remarks.—A satisfactory volume of business has been transacted during the past week, and no doubt the fine weather contributed to this. Peaches, Pears, Plums and Grapes from South Africa continue a popular section of the trade. The fruits, generally, are in good condition and sell well. Australian and New Zealand Apples are available in good condition and they are realising prices that will doubtless prove satisfactory to the growers. The North American Apple season has not entirely finished, a few fruits being still available from the United States and Nova Scotia. Hothouse Grapes from Belgium are in demand, and a few Grapes are arriving from the Worthing district. Forced Strawberries are a fairly good trade, although still very expensive. Grapes from Australia are useful and sell moderately well. Asparagus is arriving from France in greater quantities and, unfortunately for the English Asparagus grower, the large consignments from France are coinciding with his earliest cuttings. Forced Beans, Peas and new Potatos are all cheaper, the cheapness of Asparagus and the usual congestion of produce over the holiday being the main cause of lower prices. Mushrooms are a variable business; their prices fluctuate with the quantities marketed daily, but by the end of the week trade in Mushrooms will have become more stable. New Potatos from Spain the Azores, Canary Islands and Guernsey are a moderate trade. Salads are selling fairly well. Green vegetables are not a particularly keen business. Trade in old Potatos is steady at prices round about the same as last week for tubers of best grades.

GLASGOW.

Daffodils continued to be a weak feature of the cut flower market during the past week when large daily deliveries were chiefly responsible for the cheap prices. Sir Watkin was worth from 1/- to 1/4 per dozen bunches; ornatus, 1/- to 1/9; Emperor, 1/3 to 1/9; Victoria, 1/6 to 2/-; and King Alfred, 2/6 to 3/6. Tulips, on the contrary, were not so plentiful, as growers are nearing the end of the season and values were therefore influenced in an upward direction. Prices for Murillo ranged from 7d. to 9d. (6's); Bartigon, 7d. to 11d.; Haarlem, 8d. to 10d.; Prince of Austria, William Copland, Lucretia and Luisante, 10d. to 1/-; Madame Krelage, 9d. to 1/-; Clara Butt, 4d. to 8d., and Farncombe Saunders, 1/2 to 1/6 per dozen. Blue Irises were 6d. to 1/- cheaper at 2/- to 4/- per dozen, while the value of yellow varieties remained steady at 1/6 to 2/6. Lilium longiflorum (Harrissii) realised from 4/- to 5/6 per bunch; Richardias, 4/- to 7/-; Lilac, 1/- to 1/6; Lily-of-the-Valley, 2/- to 2/6; Hyacinths, 6d. to 9d.; Carnations, 3/- to 4/- per dozen; pink Roses, 3/6 to 5/-; red Roses, 2/- to 4/-; Anemones, 1/- to 1/6; and Wallflowers, 1/- to 1/6.

Bedding plants were offered in increasing quantities, but at this early season there was no demand, and prices of Dahlias, Asters, Stocks, Lobelia, Gladioli, Antirrhinums, Daisies and Marigolds were normal at 1/6 to 2/- per box.

Business in the fruit market was again quiet, but the tone, generally, was steady. Oranges and Apples were quoted unchanged, but Cape Grapes realised 7/- per box after the price had been 5/-. The value of Porto Rico Grape Fruit fluctuated between 20/- and 25/- per case.

In the vegetable section Cauliflowers averaged 3/6 per dozen; English Cucumbers, 6/- to 7/- per dozen; Dutch Lettuces, 30's, 3/- to 3/6; 24's, 2/6 to 3/-; French Beans, 5/6 per box; Guernsey Beans, 1/6 per lb.; Peas, 12/- per hamper; Radishes, 2/-; Endive, 2/6; Tomatos were scarce at 28/- to 32/- per bundle, and field Rhubarb sold for 10/- to 12/- per cwt.

GARDENING APPOINTMENTS.

Mr. Rowland Brown, for the past three years foreman at Englefield Gardens, Reading, Berkshire, as gardener to J. P. Marling, Esq., Great Rissington Manor, Bourton-on-the-Water, Gloucestershire. (Thanks for 2/6 for R.G.O.F. Box.—Eds.).

Mr. J. Smith, for the past six years gardener to C. E. de Trafford, Esq., Hothorpe, Theddingworth, Rugby, as gardener to the Rev. Mother, at Poles, Ware, Hertfordshire.

NEW HORTICULTURAL INVENTIONS.

These particulars of new Patents of interest to readers, have been selected from the Official Journal of Patents, and are published by special permission of the Controller of H.M. Stationery Office.

LATEST PATENT APPLICATIONS.

5,347.—Christensen, G. H.—Tool for digging trenches. February 25.
4,963.—Dunn, A. C. L.—Apparatus for spraying etc., liquid manures. February 22.
5,411.—Gunn, Ltd., T.—Bearings for wheelbarrows. February 25.
4,828.—Knowles, A. G.—Apparatus for binding Watercress, flowers, etc. February 21.
5,044.—Romell, M. M.—Knife for cutting stamps for Potato printing, etc. February 22.

SPECIFICATIONS PUBLISHED.

266,069.—Nesbitt, S. G. M., Butler, J. B., and Drumm, J. J.—Process of treating vegetable produce.
266,099.—Lyons & Co., Ltd., J., and Herbert, S. G.—Spraying-nozzles.
265,675.—Strand, H. W.—Combined harvesting and grading machines for tubers.
265,753.—Bladen, A.—Barrow wheel.
265,776.—Humphreys, J. P.—Appliance for topping Beet or like root crops.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at the uniform price of 1s. each.

Abstract Published.

A recent improvement in motor-driven lawn mowers enables one to cut the grass in awkward places without having to hold the machine in check when going backwards and forwards over the ground. The idea is to have a clutch arrangement which enables the ground rollers to be disconnected at will by just touching a lever. By doing this the rollers are prevented from exerting their pushing force, so that one is free to use the machine just as if it were one without an engine at all, although the cutters are working all the time. The idea is that of Messrs. E. M. Smith, of Sigers, Eastcote, Middlesex; H. N. Death, of Manor Lodge, Saltford. Somerset; and the Tangent Tool Engineering Co., Ltd., Tangent Works, Keynsham, near Bristol.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the Official Trade Marks Journal, and is published by permission of the Controller of H.M. Stationery Office.

DARFEN.

476,831.—Cleft fencing, fencing posts, pale fencing, palisade fencing and gates, all made principally from wood; cords, twines, ropes and hay bands, all being goods in Class 50.—The Darlington Fencing Co., Ltd., Hopetoun House, 5, Lloyds Avenue, London, E.C.3. March 16.

INSURANCE.

471,208.—Canvas hose (tubular) for exportation from the United Kingdom to and sale in India.—Turner, Hoare and Company, Ltd., Gateway Building, Apollo Bunder, Bombay, India. March 16.

BRIMPHOS.

474,880.—Phosphates, being fertilisers.—The Basic Slag and Phosphates Companies, Limited, 67, Queen Victoria Street, London, E.C.4. March 9.

SLUGICIDE.

476,595.—Chemical substances used for agritural, horticultural, veterinary and sanitary purposes.—The British Drug Houses, Ltd., 16 to 30, Graham Street, City Road, London, N.1. March 9.

THE
Gardeners' Chronicle

No. 2105.—*SATURDAY, APRIL* 30, 1927.

CONTENTS.

- Algiers, a horticulturist in 295
- Alpine garden—
  - Ranunculus amplexicaulis ... 300
  - Trifolium uniflorum 300
  - Trillium sessile ... 300
- Apiary notes 305
- Apple scab, effect of shade on ... 305
- Books, notices of—
  - A new monograph of Colchicum ... 304
- Damping off, to prevent 297
- Economic plants of the Bay Islands ... 305
- Flower garden—
  - Perennial Lobelias... 300
  - Tropaeolum tuberosum 300
- Fruit trees, on "ringing" 295
- "Gardeners' Chronicle" seventy-five years ago 297
- Indoor plants —
  - Audouinia capitata 301
  - Salvia Greggii ... 301
- Klosterneuburger Horticultural College ... 297
- Lilies and manure ... 302
- Luminous plants ... 296
- Nursery notes—
  - Longfield House Nursery 30 6
- Obituary—
  - Mount, Geo. ... 311
- Onions... 307
- Orchid notes and gleanings—
  - Masdevallia ignea ... 300
  - Ophrys apifera ... 300
- Parks and gardens, public 307
- Polyanthus, the old blue 307
- Potash from the Dead Sea 297
- Primroses, blue ... 296
- Professor of horticulture appointed sales manager 297
- Societies—
  - General Bulb Growers of Haarlem (Holland) 311
  - Lincolnshire Daffodil 310
  - Manchester & North of England ... 308
  - National Rose ... 307
  - Norfolk and Norwich Horticultural ... 311
  - Reading and District Gardeners' ... 308
  - Royal Horticultural 309
- Spring flowers in Regent's Park and Hyde Park... ... 301
- Temperate House, Kew 307
- Trees and shrubs—
  - Berberis Julianae ... 300
  - Rhododendron lutescens 300
  - Sycopsis sinensis ... 300
- Trenching, deep ... 307
- Tulips in the Royal Parks 296
- Vegetable garden—
  - Beet... 306
  - Some uncommon vegetables worth growing 306
  - Tomato Essex Wonder 306
- Ward's, Mr. F. Kingdon, ninth expedition in Asia 303
- Weather one hundred years ago 296
- Weeds 296
- Week's work, the ... 298

ILLUSTRATIONS.

- Mount, Mr. George, portrait of the late 296
- Narcissus Papyrus 301
- Rose, Charles P. Kilham 297
- Trifolium uniflorum 299
- Ward's, Mr. Kingdon, expedition: views of 302, 303 304

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 50·2°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 27, 10 a.m. Bar. 30.2. Temp. 49°. Weather, Cloudy.

On "Ringing" Fruit Trees.

THE practice of ringing branches of fruit trees in order to induce fruit-bud formation and the development of large fruits is one of ancient date. In the hands of skilled operators it has often led to beneficial results, though why it should do so is, at best, a matter of conjecture. The subject of "ringing" has been investigated* recently at the Research Station, Long Ashton, by Mr. Swarbrick, with results which are of interest both to fruit growers and to students of plant-physiology. The conclusion of most practical importance reached by the author is that, as in so many other garden operations, timing is the essence of the contract. If the ring of cortex and bast be removed too early, for example, before the time at which the buds begin to break, the result in the case of two-year-old shoots of Apples are apt to be disastrous; before the year is out branches above the ring die and break off. If, on the other hand, a ring of cortex and bast be removed too late in the year, no flower bud formation is induced in the ringed branch, and the vegetative buds of the branch delay their breaking for at least a fortnight after the time when the buds on untouched branches have burst. But if ringing be done in early June, the effects as revealed next spring are remarkable. Fruit-bud formation has been induced above the ring, and the fruit-buds on the ringed branch open out their flower trusses a fortnight before other fruit-buds on unringed branches begin to break. Therefore, if the object of ringing be to induce fertility, the operation must be properly timed. Fruit bud formation in the Apple is known to occur normally during late June and early July. What the plant does in that part of the year determines apparently the supply of blossom in the following spring; ringing, therefore, must be done so late as possible, but early enough to catch the tree in the fruit-bud forming mood. It must not, however, be left too late, for otherwise the laborious operation of wound healing is not completed before growth ceases in the autumn. Branches ringed late do not heal completely within the year. Therefore, those—and there are many—who own trees which are reluctant to form fruit buds, and who would like to try the effect of ringing, should time the operation for about the end of the first week in June. A narrow ring, say, of half-an-inch, or a little more, appears to be better than a wider one, for evidently the healing operation necessary to rejoin the severed tissues will then be of lesser magnitude. Some practice a knife-edge ring—that is, a circular incision down to the wood. This, however, does not appear to be drastic enough; the wood heals too quickly. From observations made by Mr. Swarbrick, it appears that callusing of the wound is greatly favoured if the ring is covered by surgical tape. When this simple dressing is provided, callus starts at both upper and lower edges of the wound. A mass of dividing cells grows out from the phloem. These cells produce phellogen by the division of whose cells a mass of wound callus is formed which spreads over the cut surface and restores continuity between the upper and lower edges of the ring. Those who undertake the operation require to exercise care lest the cut goes too deep. It should leave the wood intact or as nearly as may be intact; for otherwise the ringed branch may be destroyed. A little practice, however, will soon give the necessary precision, and those who are skilled in the art of budding and grafting will have no difficulty in ringing branches. It would be well however, to begin, not on the trees that are whole, but on those which are persistently unfruitful or only meagre producers. Moreover, it is to be remembered that Mr. Swarbrick's experiments were done on two-year-old branches of Apple. Whether the operation would be so successful if performed on, say, the eight- to ten-year-old main stems of cordon Pears—a whole regiment of which we have in mind as an unfruitful set—is, perhaps, doubtful. It would be particularly interesting to ascertain whether ringing may not be the means of inducing fruitfulness in Pears which, grown as cordons, are undoubtedly on stocks too vigorous for fruitfulness. Root-pruning in such cases is doubtful and laborious, and if ringing were to induce fruitfulness there are many fruit gardens which would greatly profit thereby. Science is creeping up to practice and we are glad to see that the research workers in pomology keep a keen eye on the practical side, whilst not neglecting the purely scientific. These ringing experiments throw interesting light on the way in which plants mobilise their food materials, passing them from the leaves to all other parts. We believe that presently something like a true picture of the movement of the food material throughout the plant will be arrived at, and then much that is dark and doubtful in the physiology of plants will become clear and certain—to the benefit both of scientific and practical horticulture.

Award of the Linnean and Crisp Medals.—At the meeting of the Linnean Society, on the 7th inst., the President, Dr. A. B. Rendle, announced that the Linnean Medal had been awarded to Dr. Otto Stapf, Ph.D., F.R.S., and the Crisp Award and Medal to Professor Herbert Graham Cannon, M.A., D.Sc.

Horticultural Club.—Following a dinner of the Horticultural Club at the Trocadero Restaurant, Piccadilly Circus, on May 10, Mr. E. A. Bowles will deliver a lecture illustrated by lantern slides, entitled, "Botany, History and Philology of the Cabbage." Non-members may obtain tickets for the dinner and lecture, price 10s. 6d. each, from the Hon. Secretary, Mr. G. F. Tinley, 855, London Road, Westcliff-on-Sea, Essex.

Creosoting Posts.—In a letter by Mr. G. F. T. Leather, in the *Quarterly Journal of Forestry*, for April, the writer states that wood should never be creosoted with the bark on, as bark is very absorbent. Mr. Leather does not consider it necessary to creosote either Ash or Elm posts, if they have to be put into the ground, as though they do not actually rot, they become very brittle and snap off like Carrots. Birch, Mr. Leather considers, is much improved by the treatment, and whereas untreated Birch posts last only about two years, a creosoted one appears to last as long as Larch. Mr. Leather advises all those erecting permanent fences to treat the posts with either creosote or some other preservative. Gardeners should remember that creosote is very injurious to plant life, and that it is not advisable to plant Roses or any other subjects close to posts that have been newly creosoted.

A Horticulturist in Algiers.—Mr. J. Cheal, of Messrs. J. Cheal and Sons, Crawley, who is on a visit to Algiers, sends us greetings from the desert and gives an interesting account of some of the things he has seen. He states that on landing at Algiers and when motoring over one hundred miles through the country to the east and south, he was most impressed with the fertility and high state of cultivation of the land; the ground is mostly undulating with very few trees. The district includes many thousands of acres of vineyards all in a high state of cultivation, the tillage being done by hand, horses, mules, camels, and in some cases with Fordson tractors. He states that motor-sprayers are used for the suppression of diseases, the chief insecticide employed being Bordeaux mixture. He saw many men and women engaged in thinning and tying up the young growths of the vines. A little corn is grown, chiefly Barley and Oats, also Beans, Peas and many Potatos. In some of the sheltered places the early crop of Potatos was already lifted, but in the open fields planting of the late varieties was still being done by women and children. One crop that he saw from a distance rather puzzled him, and on close inspection he found it to be an Ivy-leaved Pelargonium, the foliage of which was very dense and covered with pale pink flowers. The leaves are very strongly scented, causing the air to be heavy with perfume, and Mr. Cheal concluded that the crop was grown for producing scent. He states that this particular crop extended to several thousand acres. He saw plantations of Oranges and Loquats, the former with rather small fruits, but of very good quality; the latter were not nearly so large and good as those grown in Egypt. Plums, Olives, Figs and a few Apricots are also cultivated, but he saw no Apples or Pears. Tomatos are grown extensively in market gardens near towns. The plants are protected by shelters made with Bamboo rods and leaves placed closely together sloping towards the south, and on these the Tomato plants are trained. He states that there is an air of prosperity everywhere, and Algiers must be an exceedingly valuable colony to France in many ways. Further inland, Esparto grass is grown to supply pulp for paper-making. He saw many large stacks of the grass and many railway trucks laden with bales of it ready for transport to the ports, most of it being shipped to this country.

---

* The Healing of Wounds in Woody Stems. II. Contribution to the Physiological Anatomy of Ringed Apple Shoots. By Thomas Swarbrick, *Journal of Pomology, VI.*, February 1, 1927.

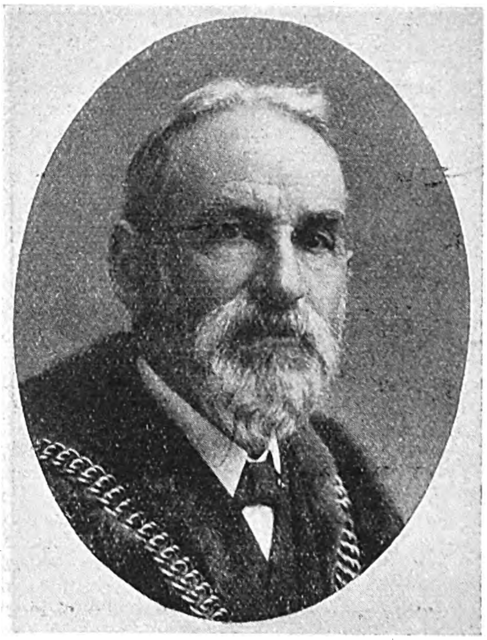
Weeds.—In reply to a question by Mr. Spoor as to the number of cases of action taken by County Agricultural Committees to enforce the regulations for destroying weeds under the provisions of the Corn Production Acts (Repeal) Act of 1921, the Minister of Agriculture in the House of Commons recently gave the following interesting particulars :—

	1922	1923	1924	1925	Total 1922-1925.
Cases reported to Agricultural Committee ...	241	936	1481	1451	4109
Cases dealt with by arrangement	187	917	1426	1321	3851
Notices served	82	91	104	190	467
Successful prosecutions .	1	6	9	14	30
Unsuccessful prosecutions	—	3	—	1	4

Blue Primroses.—From Mr. W. J. Stables, Gardener to Clive Cookson, Esq., we have received a selection of blue and other Primroses raised at Nether Warden, Hexham, where Orchids are not the only interesting plants grown. The original cross was between a blue Primrose and Primula Purple Splendens, and the results, together with seedlings of the second generation, are very beautiful, the blue colour ranging from light mauve-blue to intense violet-blue. Most of the flowers are of fine size and have an orange centre ; others produce their flowers in bunches, after the style of Polyanthuses, but on shorter peduncles. A few varieties are of rich crimson colour, and these are as beautiful in their way as the blue forms, but the latter are the most interesting and indicate the great possibilities that lie in careful crossing and selection.

Luminous Plants.—At the meeting of the Linnean Society on April 7, Mr. J. Ramsbottom referred to the phenomenon of luminescence. Amongst plants, bacteria, fungi and Peridineae, all non-chlorophyllous, are well-known as showing examples. Luminous bacteria commonly occur on putrefying fish, meat and such like, and about thirty species have been described. Pierantoni and Buchner have been led to a belief in bacteria being the source of light in various animals by the study of the symbiotic yeasts—*e.g.*, in the larvae of Aphids. Amongst fungi the phenomenon is seen in many species of Pleurotus, both sporophore and mycelium usually being luminous. None of these species has been recorded for this country. Luminous wood is common, but it is due to the mycelium and young rhizomorphs of Armillaria mellea. It is of interest to note that there is sometimes unanimity about the luminosity of a given fungus, *e.g.*, Armillaria mellea and the American Jack o' Lantern (Clitocybe olearia—C. illudens). At other times there are conflicting statements, *e.g.*, about Xylaria hypoxylon and Panus stipticus. Buller has recently shown that the American forms of P. stipticus are luminous, whereas those of Europe are non-luminous. Another point of interest is that decaying leaves on the ground in woods frequently emit light, presumably on account of the presence of fungal hyphae.

Syringa Lamartine.—This hybrid Lilac, which received an Award of Merit when exhibited at the fortnightly show of the Royal Horticultural Society on Tuesday last (see p. 309), by the Director, Royal Botanic Gardens, Kew, is the result of a cross between the early-flowering Chinese species, Syringa Giraldii, and an early-flowering variety of the garden Lilac (Syringa vulgaris), raised by M. M. Victor Lemoine and Sons, Nancy, France. This new Lilac is a vigorous-growing variety, forming a tall, upright growing bush, flowering during the second half of April, which is a week or two before the earlier named varieties of Lilac make much display in our gardens. The single blossoms are an inch across, borne in large panicles of pleasing fragrant, mauve-pink flowers. Syringa Lamartine and several other varieties of similar origin were introduced just previous to the outbreak of war, in 1914. Lamartine has been in cultivation at Kew since 1912, but recent inquiry of M. Lemoine indicates that there was very little demand for the plants, and some appear to have been lost. Those which still survive and have been recently planted at Kew include S. Berryer, semi-double, mauve ; Buffon, single, mauve-pink ; Claud Bernard, semi-double, lilac-mauve ; and Mirabeau, single, mauve.



THE LATE MR. GEORGE MOUNT, V.M.H.
(see p. 311).

Tulips in the Royal Parks.—Sir Daniel Hall has compiled the following short history of the Tulip for His Majesty's Office of Works, for display in the Royal Parks and Gardens during the time when the bulbs are in flower :—" The garden Tulip was brought to western gardens from Turkey about the middle of the sixteenth century. Its origin was still further eastward, for manuscripts two centuries earlier describe in the gardens of Baghdad Tulips possessing all the special characteristics that distinguish the race to-day, but from what species, one or many, the garden Tulip arose we are still uncertain. From its earliest introduction it became a much-prized flower, not only in England and Holland, but also in Flanders, France and Germany, wherever gardens flourished. New varieties were raised from seed ; in 1629, Parkinson enumerates over a hundred. Fanciers made a cult of the flower and defined the characters to be aimed at in breeding. About 1630, the interest in Tulips grew to such a pitch in Holland that the speculators stepped in and made gambling counters of the new varieties which were sold by auction at amazing prices to all sorts of people who had not the least intention of growing them. After this mania the Tulip still remained a florist flower and was continually improved throughout the eighteenth century, chiefly by the Dutch growers. The English fanciers then took up the work, and early in the nineteenth century the working-man florists in and around London and all of the towns of the north and mdlands, bred the Tulip to new standards of excellence. With the growth of the towns, the old florist societies and their shows are almost extinct, but it is to their work that we owe many of the flowers adorning the garden to-day. Though all the garden Tulips belong to one common race, they can be divided into certain well-marked groups. First of all, come the early Tulips, which bloom in the open about London towards the middle of April. They are dwarf in habit and are mostly self-coloured yellows, pink and purples, and whites. About three weeks later the stronger-growing May-flowering Tulips are in bloom. The oldest group, the Dutch, embraces flowers usually of medium height with cup- or egg-shaped blooms, in colour brown (bizarres), rose or purple (bybloemen). The English Tulips are very similar, but the flowers are more brilliant in colour and open into a more perfect cup. The Darwin Tulips are a stronger strain of more recent introduction, taller and more vigorous in growth, with massive, square-shouldered blooms that stand up well to the rain and wind in the open garden. Cottage Tulips form a very varied group, often with long, pointed and recurved petals. They include the pure yellow flowers and others of mixed shades where pink and purple is shot with yellow. All garden Tulips exhibit one peculiarity. New varieties arise only from seed, and the seedlings always come self-coloured—pink or purple, or brown. *i.e.*, some shade of crimson on either a white or a yellow ground. The original seedling bulb then increases from offsets and may give rise to millions of bulbs, all of which are exactly alike. But from time to time, amongst these " breeders " sports occur in which the original self-colour is drawn up into streaks and stripes on a white or yellow ground. These " broken " Tulips produce increases like themselves and never go back to the self-coloured forms. Thus, there are streaked Tulips belonging to the Dutch, English, Darwin and Cottage groups, and it is the English broken Tulips that are most prized by the fancier. A few Tulip species are grown : T. Greigii, with spotted leaves, the early T. Kaufmanniana, T. praestans, and T. Fosteriana are brilliant but uncertain in many gardens ; T. sylvestris, a small, nodding, sweet-scented Tulip, is doubtfully wild in some English localities, but was probably brought here by the Romans. May-flowering Tulips are among the easiest and most gratifying of bulbs to grow, but to make the best of them they should be planted deep ; six inches below the surface and lifted every year when the leaves begin to yellow."

Legacy to a Gardener.—The late Mr. Henry Swain, a member of the firm of Freeman, Hardy and Willis, who left £149,941, bequeathed £100 to his gardener.

The Weather One Hundred Years Ago.—In view of the very cold weather of the past week or so and the heavy falls of snow in some parts of Scotland and northern England, the following paragraph extracted from the *Times* of Friday, April 27, 1827, shows that severe cold with much snow caused gardeners as much anxiety then as the present severe weather is giving them now :—" The weather has again assumed the aspect of winter. Yesterday morning a snowstorm commenced and continued, without intermission, throughout the day. The adjacent country was covered with snow to a depth of several inches, and the trees and bushes, which, within the last fortnight, have burst into leaf, presented the unusual appearance of their green and tender foliage shrouded in the ungenial drapery of winter. Towards evening the storm increased to a tempest. Gardeners must view this extraordinary change in the atmosphere with dismay.—*Edinburgh Observer*. A heavy fall of snow occurred in this neighbourhood early yesterday morning. The Blagdon Hills were covered to a depth of half-a-foot in a few hours.—*Taunton Courier*."

Crop Prospects in the Vale of Evesham.—A correspondent informed us that the warm weather during the Easter holiday and since has resulted in rapid development of plant growth in the Vale of Evesham, and the first cutting of Asparagus of any commercial significance was made last week. The Asparagus season promises to be one of the best, so far as quality and yield is concerned, during recent years. Asparagus was first introduced to Badsey, which is regarded as the centre of the industry in the midlands, so far back as 1860, and it is estimated that within a five-mile radius of Evesham there are over five hundred acres of Asparagus. Up to the present, the prospects are favourable for a good yield of fruits. Plum blossom, which provided a glorious site for holiday-makers at Easter, is fast vanishing, and in a few days the countryside will wear a mantle of green. Such spring flowers as Narcissi, Wallflowers and Daffodils have realised good prices. Hardly any Wallflowers have sold for less than sixpence per dozen bunches, while Narcissi and Daffodils have made about two shillings per dozen, while Primroses, Canterbury Bells, Polyanthuses, Violets, Anemones and Forget-me-Nots have all made good prices in the Pershore (Worcestershire) markets.

Potash from the Dead Sea.—The Colonial Office and the Government of Palestine are prepared to grant a concession for the working of the deposits of salts, which are rich in potash, in the Dead Sea. It is estimated that the total quantity of potash in these deposits is 2,000,000,000 metric tons, and that there should be no difficulty in extracting 100,000 tons of potash annually from the sun-evaporated brine of the Dead Sea. In order to develop the scheme, a power station for pumping and machinery will have to be erected and a new railway built from Jerusalem, a distance of eighteen miles, or, alternatively, a pipe-line or transport by road will be organised.

Professor of Horticulture appointed Sales Manager.—Professor Arno H. Nehrling, of the Department of Floriculture and Ornamental Horticulture at the New York State College of Agriculture, is joining the Hill Floral Products Co., of Richmond, Indiana, as sales manager. Professor Nehrling, after winning a competitive scholarship at the Shaw School of Botany, St. Louis, was placed in charge of the school garden work in Chicago, and subsequently became assistant in floriculture at the University of Illinois. This is not Professor Nehrling's first venture into business for, after being appointed head of the department of floriculture at the Massachusetts Agricultural College, he entered the florists' business as president and manager of Messrs. McDonald and Co., a wholesale and retail firm at Crawfordsville, Indana. This appointment, however, he relinquished after four years and joined the staff of the New York State College as Professor of Horticulture.

To Prevent Damping Off.—A correspondent, writing in *Horticulture, U.S.A.*, states that the use of granulated peat moss largely prevents seedlings from damping off. He states that he finds granulated peat very effective in preventing damping off in Rose seedlings. The peat absorbs large quantities of moisture without becoming waterlogged and is always well aerated. In addition it is bacteriologically sterile and inhibits the development of fungi and other foreign growth in the seed-pan.

Klosterneuburger (Austria) Horticultural College.—We learn from an Austrian contemporary that Dr. Ludwig Linsbauer, for many years Professor and since 1922 Director of the Horticultural College at Klosterneuburg, has retired, and has been succeeded by Dr. Arthur Bretschneider.

Appointments for the Ensuing Week.—Sunday, May 1: Wakefield and North of England Tulip Society's meeting. Monday, May 2: Romsey Gardeners' Association's outing. Tuesday, May 3: Rhododendron Society's show (two days); Royal Caledonian Horticultural Society's meeting. Wednesday, May 4: Nottingham and Notts. Chrysanthemum Society's meeting. Thursday, May 5: Manchester and North of England Orchid Society's meeting. Friday, May 6: Accrington and District Chrysanthemum Society's meeting; Orchid Club meeting. Saturday, May 7: British Mycological Society's Spring Foray at Wisley, for London students; Blackburn and District Horticultural Society's meeting.

"Gardener's Chronicle" Seventy-five Years Ago.—*The Auricula.*—As Auriculas are still in flower, and as we have been asked "What constitutes a perfect Auricula in the estimation of a florist?" we gladly respond to the question by laying down the principal rules by which we are guided when examining this favourite florist flower. In its general appearance the foliage should be well grown and healthy, covering a space about equal to double the width of the head of bloom. The stem should be firm, erect, and sufficiently strong to support the truss without assistance, and to carry it well above the foliage. The footstalks of the pips should be strong and of such a length as will allow the flowers to open without one overlaying another, the whole forming a compact and globular head of well-expanded flowers, equal in size and similar in properties. The addition of one or two guard leaves, standing up at the back of the truss, gives a finish to the whole and adds considerably to its beauty, by the contrast they make with the vivid and lively appearance of the flowers. The qualities which the individual pip should possess consist in its being perfectly round, flat, and smooth on the edge; the division which form the segments of the corolla should be but very slightly indented, thereby rendering the circle as perfect as possible. The tube, or centre, must be round, of a yellow colour, filled with the anthers or "thrum." The eye or "paste" round the tube should form a perfect circle of a dense pure white, clean on its edges, even, and free from blemishes. The band of colour surrounding the eye should be dark, rich or bright, equally distributed all round; but never encroaching so much upon the edge as to pass through to the rim. The margin, or outer edge, must be of a permanent green, white, or grey colour. The circles which compose the face of the pip are considered of the finest proportion when they are of a uniform width; that of each circle being half the diameter of the tube. These properties are considered by florists to form the standard of perfection in the Auricula. The number of pips necessary to form a head for competition varies in different localities. In the north they are exhibited with from three to nine; about London seven are considered requisite. Not less than five, however, ought to be allowed (except, perhaps, in seedlings of the first season), and as many more as can be symmetrically arranged, that have the required properties. Selfs, or Auriculas with only one colour, besides the eye, are judged on the same principle, as regards form, colour, uniformity, and size; with this exception, that as in some sorts the eye is small, in comparison with the blue purple, or dark, a slight variation is required in regard to the proper distribution of colours, and the paste, or eye, ought to be one-half the width of the tube—larger in self-coloured Auriculas than in those which are edged. Alpines, or Auriculas with yellow centres and shaded margins, are judged by the same standard as above. They are not, however often grown. *Gard. Chron., May* 1, 1852.

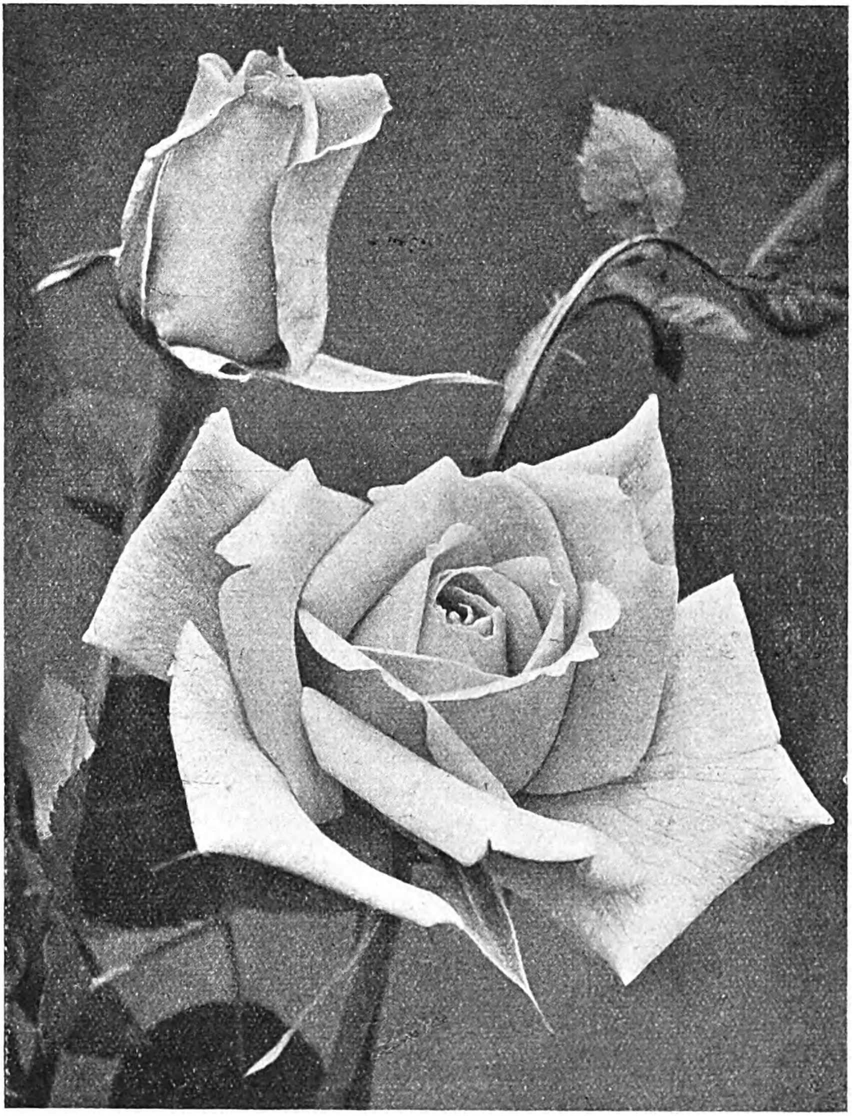


FIG. 145.—ROSE CHARLES P. KILHAM.

Awarded the N.R.S. Gold Medal on April 22. (see p. 307)

Publications Received.—*The Beginner's Garden*, by Mrs. Francis King; Chas. Scribner's Sons, 7, Beak Street, W.1; price 7/6 net.—*Catalogue of Scientific Books*, on sale by W. Heffer and Sons, Ltd., 4, Petty Cury, Cambridge.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Orchid Grower to LADY LEON, Bletchley Park, Bletchley, Bucks.

Lycastes.—The genus Lycaste comprises many plants especially useful to those who have to maintain a supply of choice flowers at all seasons. L. Skinneri, in its many varieties, together with L. Locusta, L. costata, L. cruenta, L. lasioglossa, L. macrophylla, L. Ballae, L. Imschootiana, L. Lucianii and L. Janetiae, have been blooming for some considerable time, and directly they have passed out of flower is a suitable time to ascertain if any are in need of fresh rooting-material. Plants that have sufficient rooting-space and with compost in good condition should not be disturbed. Others that have become pot-bound, and those that are in a bad condition at the roots or are growing in decomposed material, should be taken out of the pots, the old material carefully removed, and repotted in fresh compost.

Compost.—The compost should be made of good fibrous loam, from which the earthy particles have been removed, peat fibre and A.1. fibre in equal parts, mixed with a small quantity of Sphagnum-moss.

Watering.—Keep the crown of the plant below the rim of the pot in order to provide ample space for watering when the plants are in full growth, as during their season of growth these Orchids require liberal supplies of moisture at the roots; even when they are at rest they should not be allowed to suffer for the want of water. The usual precautions as regards the application of water to newly-potted plants applies especially to these Orchids, as they have fleshy roots which soon decay if over watered. The pots should be well-drained to allow the surplus water to pass away freely.

General Treatment.—Those named and others which produce their flowers at different seasons will all succeed at the cooler end of the intermediate house, or at the warmer end of a cool house where the atmosphere is not close. The plants should be watched from time to time for attacks of red spider, which is liable to infest the undersides of the leaves when the plants are growing in a dry atmosphere. Dipping the plant in a mild insecticide may be recommended, and, during hot weather, spraying them under the leaves once or twice daily. These Orchids should be shaded from strong sunshine as their thin leaves soon become scorched if exposed to strong sunlight.

THE KITCHEN GARDEN.

By R. H. CROCKFORD, Gardener to THE RT. HON. LORD WAVERTREE, Horsley Hall, Gresford, N. Wales.

New Zealand Spinach.—This vegetable should be sown in rows made three feet apart in a sunny situation and, if possible, in light soil. The seedlings should be thinned finally to two feet apart.

Beet.—The main crop of Beets may now be sown in an open situation on well-pulverised, deeply dug, unmanured ground. A liberal dressing of burnt refuse strewn over the surface of the ground and afterwards well raked into it will be found very beneficial to the crop. The seeds should be sown very thinly in drills made about one-and-a-half inches deep, and fifteen inches apart. Both long and round varieties may be sown now, but on very shallow soils I advise sowing the round varieties only. Should long, shapely roots be required for exhibition, adopt the method advised by me in a previous calendar for growing exhibition Parsnips and Carrots.

Salsify and Scorzonera.—Seeds of these vegetables may be sown now on similar ground to that advised for Beets. A careful watch should be kept for mice, as they quickly destroy the seeds of these vegetables.

Dwarf Beans.—A small sowing of Dwarf Beans may be made on a warm, sheltered border. The soil should previously have been well prepared. Care must be taken so soon as the young plants show above the ground, to provide some protection for them on cold, frosty nights. Slugs are often troublesome to this crop in showery weather, but frequent light dustings with old soot will act as a deterrent to these pests. Seeds of dwarf and also Runner Beans sown earlier in boxes have germinated, and the seedlings should be given plenty of ventilation and hardened gradually in readiness for planting outside towards the end of May or early in June.

Brussels Sprouts.—If not already done, the site intended for this crop should be well trenched and manured, in readiness for setting out the plants. In the meantime the seedlings should be well hardened by exposing them fully to the weather, except on frosty nights.

Dandelion and Chicory.—Seeds of these salads should now be sown in rows made one foot apart. When sufficiently advanced, the young plants should be thinned to a distance of nine inches and twelve inches respectively.

Ridge Cucumbers.—Where there is a demand for ridge Cucumbers, the young plants should be raised in small pots, and well hardened preparatory to planting them out in a warm position on a raised bed towards the middle of June.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Hippeastrums.—As these plants pass out of flower they should receive every encouragement to form stout bulbs, and to obtain this end the plants should be encouraged to produce strong, healthy foliage. Much will depend on the treatment extended to the plants during the next few months with regard to the flowers they will produce next season. They should be fed liberally with liquid manure and grown in a temperature ranging from 60° to 70°, but after the foliage is fully developed they may be transferred to a house having a lower temperature, and placed in a sunny position in order that the bulbs may become well-ripened. Continue to water the plants until such time as the condition of the foliage shows that a rest is needed.

Grevillea robusta.—Grevillias raised from seed that were sown during February as I advised are ready for placing singly in small pots. The compost should be of an open texture. Stand the young plants in a house having an intermediate temperature until they have become well established at the roots; later, they may be grown in cooler conditions. Treated in this way the plants will be able to withstand the various temperatures they will be subjected to when used for decorative purposes.

Cuttings.—Cuttings of various subjects that have been rooted for the decoration of the stove and greenhouse, such as Codiaeums (Crotons), Dracenas, Saintpaulia and Bouvardias, should be ready for transferring singly to small receptacles. Care should be taken not to break the young roots, which are very brittle. The soil for this potting will depend on the subject under treatment; for instance, Codiaeums (Crotons) and other stove plants need good fibrous loam and peat, while most of the greenhouse subjects require a mixture of good, open loam, leaf-mould and old Mushroom-bed manure, with a liberal quantity of coarse sand and broken charcoal added in both cases. After potting the plants, stand the various subjects in temperatures suitable to ensure free growth. Watering should be done very carefully until the young plants have become well established in the new compost. Most of these subjects will need shading slightly for a short time, and they will be greatly benefited by spraying them lightly several times daily, but not to the extent that would cause the top-soil to become sour.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to COLONEL SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

The Orchard House.—The earliest fruits of Peaches and Nectarines will be sufficiently advanced to call for variation in treatment; more fresh air should be admitted to the house, the syringing should be lighter, and less fire-heat used. The flavour of very early fruits is often spoiled by hard forcing, whereas, by opening the ventilators and using the minimum amount of fire-heat, their quality may be improved and their season prolonged. The same careful attention should be paid to watering, which at this stage must be copious when moisture is needed. The best time to water the roots is just before the trees are syringed and again first thing the following morning; the trees then have full benefit of moisture through the night. Syringe the houses early on bright mornings and so late as 4 p.m. in the afternoons, as trees with fruits ripening should retain moisture on their leaves for some hours. Mulching is as necessary as ever and a mulch should be applied little and often, mixed with bone-meal, etc. Diluted liquid manure cannot be surpassed, not only for watering the roots, but for damping purposes, and short, fresh stable litter will absorb and give off moisture as well as prevent rapid evaporation of water from the soil in hot, dry weather.

Later Trees.—The pinching and disbudding of the shoots may be done on the free side after this date, and the fruits on each tree thinned to a suitable number for the tree to mature, as there will be little danger now of the fruits dropping. If the weather continues to improve open the ventilators and doors by day and partially close them at night. As with the earlier trees, watering, top-dressing and feeding call for constant attention. As the trees grow, the strongest young shoots should be pinched at the fifth or sixth leaf, or less, according to their size and the space available for them. Weak growths near the base of the tree may not require pinching at all. By this means, and with liberal syringing, insect pests should be kept in check, and if not, the grower should resort to light fumigations. If space in the house is limited, very early Pears in pots may be placed out-of-doors early in June, but very choice varieties of Pears and Apples should be kept in the house.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet, Middlesex.

Grafting.—The bark of all kinds of fruit trees will now lift readily, and the work of grafting should be completed forthwith. If the scions are suitable and carefully placed on the stock no difficulty should be experienced in getting every graft to unite. Examine trees that were grafted earlier in the spring and make good the clay coverings where they may have cracked, for it is most important to exclude the air at the union of stock and scion. Espalier trees of both the Pear and Apple are best grafted on the upper sides of the branches. See that each variety is labelled correctly.

Orchards.—To obtain the best results from grass orchards the grass should be kept very short, the heads of the trees carefully thinned, and the roots well nourished. Trees that have become unproductive through neglect should receive attention with a view to the restoration of their vigour. If not done already, place a top-dressing of well-decayed farmyard manure or some other approved fertilizer over the roots. The application of lime will prove very beneficial on soils deficient in calcareous matter. Liquid manure applied at intervals until the roots and soil have become thoroughly moistened to a good depth will also benefit the trees, for if the roots of large trees are allowed to get dry and the soil hardened much watering is required to moisten them effectually.

Last Season's Grafts.—Where the grafting was successful last season and the scions are making good headway, supports will be needed to prevent them being damaged by high winds, especially in exposed situations. Fasten suitable stakes to the stocks on which the grafts are growing and secure the grafts to these. Make examinations at intervals to see that the ties are in good order and make good any that are not.

Protecting Materials.—In warm, sheltered districts, material used for protecting the blossoms of fruit trees may be dispensed with entirely, but until the danger from cold winds is over the nets may be allowed to remain in position, as the young growths are very liable to injury when a sudden change from warm to cold weather sets in, and this not infrequently happens in our climate.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Pruning Flowering Shrubs.—Shrubs that flower on wood made the previous year usually require pruning so soon as they have finished flowering. Forsythia suspensa is a good example of this class of shrub. Where this plant is trained on walls or pillars this annual pruning is very essential. F. viridissima, F. intermedia and its fine variety spectabilis, are of a stiffer and more bushy habit, and annual pruning is not so necessary in their cases. Prunus triloba var. fl. pl., which is so fine when trained on a wall, should always be pruned when it has finished flowering. Some of the early-flowering species of Ceanothus that are used as wall shrubs should receive what pruning they require so soon as they have finished flowering, thus allowing them plenty of time to complete and ripen their growth before winter. Both the Philadelphus and Diervilla (Weigela) should have at least a portion of the old wood cut out after flowering. Jasminum nudiflorum should also, when necessary, be pruned after flowering. As a general rule, shrubby plants that flower on the current year's wood should be pruned during early spring, two well-known examples being Buddleia variabilis and its varieties, and Ceanothus Gloire de Versailles.

Live Edgings.—Where it is necessary to repair or relay Box edgings, the present is a suitable time to undertake this work, for the plants will grow away freely. Santolina Chamaecyparissus, the Lavender Cotton, makes a beautiful edging plant and might be more generally used for this purpose: it is easily propagated by means of cuttings or division.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Gladioli.—The corms of these beautiful summer and autumn flowers should be planted now. Where the soil is stiff and heavy the addition of sand, both below and above the corms, is to be recommended; where the soil is naturally light this is not necessary, but the addition of well-decayed cow manure will result in the development of splendid flower spikes. The larger-flowered varieties look extremely well when grown in large clumps or masses, and may be used very effectively in the scheme of summer-bedding if interplanted with some of the intermediate forms of Antirrhinums, etc. The Primulinus section of Gladioli offers a fine range of colouring, and the more loosely-built spikes of this type lend themselves much better for use as cut-flowers than the stiffer spikes of the large-flowering types. If increase of any particular variety is desired, the small bulbs which form around the main one should be saved in the autumn, and planted in sandy soil; they will soon grow to flowering size; in fact, quite a number of these small bulbs flowered in these gardens late last season, and it is hoped that most of them will do so again this year. The early-flowering section includes some beautifully-coloured flowers, varying from the pure white of G. Colvillei The Bride through various pinks, such as Peach Blossom, to the deeper reds of Brilliant and Crimson Queen; they are all extremely useful for cutting during June and July.

Bedding Violas.—These may now be planted in their summer quarters; indeed, a greater measure of success is attained with these moisture-loving plants by putting them out early, than by deferring their planting until drier and warmer weather prevails. They are extremely useful as edging or carpeting plants, and are procurable in almost any shade of colour which may be required to contrast or harmonise with the other subjects in the beds or borders. Cuttings rooted last autumn are in excellent condition for making new plantings, and where the old plants have survived the winter these may be divided and replanted, should there be any deficiencies to make good. The ground should be enriched with well-decayed manure, deeply buried; the dung will provide both food and moisture in times of drought. Pansies also should be planted now in well-tilled ground. Take the usual precautions to protect these young and tender plants from slugs and other pests.

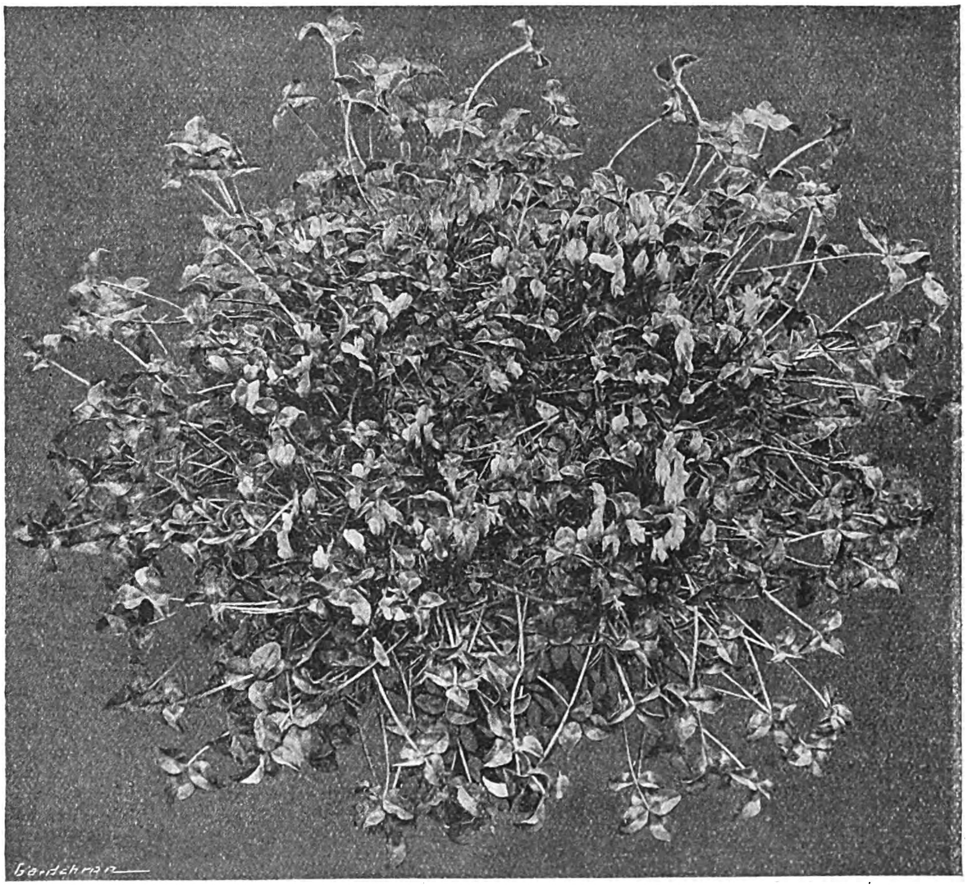


FIG. 146.—TRIFOLIUM UNIFLORUM.
(see p. 300).

Sowing Perennials and Biennials.—Seeds of many kinds of both perennial and biennial flowers may now be sown to raise plants for transplanting next autumn and spring. The smaller seeds, such as those of Canterbury Bells, etc., should be sown either in a cold frame or in boxes, but the larger ones, such as Wallflowers, Delphiniums, Lupins, etc., may be sown in nursery rows in the open.

Vegetable Marrows.—The maincrop of Vegetable Marrows should now be raised from seeds sown in pots under glass; the plants will be ready for transferring to their permanent positions out-of-doors early in June. Earlier-raised plants may be potted on, or placed on a partially spent hot-bed, where they can be protected on frosty nights; they will soon grow freely. It is necessary to pollenate the flowers of these early plants; even in the case of maincrop Marrows it is a good plan to pollenate the earliest female flowers by hand in cold districts.

Potatos.—The planting of the later varieties of Potatos should be completed at an early date. Late sorts should be planted more widely apart than early varieties, both between the rows and between the sets, especially in rich garden soil, where top-growth is usually very strong. Stir the soil by forking between the rows of Potatos above ground, and when the soil is in good order earth them up. The very earliest crops growing at the foot of a south wall are approaching the interesting stage when it will soon be possible to secure an early dish of tubers, which are always much appreciated. Ground which has been occupied by late crops, such as Leeks, Brussels Sprouts and early Broccoli may be used for the Potato crop or other root crops without the addition of fresh manure. Most gardeners rely on outside sources for their supplies of late Potatos, but where practicable a quantity should be grown, as this gives the soil a rest from a never ending green crop, and brings it into good condition for a succeeding crop.

Celery.—Celery trenches should be made in good time as this will enable various catch crops to be grown successfully on the ridges; these may include Spinach, Lettuces, and, later, a sowing of dwarf French Beans, before the soil on which they are growing is required for earthing up the Celery, the seedling plants of which are now ready for transplanting into frames. Where spot disease is troublesome spray the seedlings, so soon as they are in the trenches, with Bordeaux mixture.

FLOWER GARDEN.

PERENNIAL LOBELIAS.

These Lobelias are very effective along the banks of streams, in the bog garden, or by the side of a lake. In such places they grow luxuriantly in the hottest weather, whilst often in the ordinary border they suffer quickly from drought.

The newer varieties recently sent out by Messrs. Ladhams embrace many shades of colour, from white, mauve and purple to bright and deep crimson; the bronze foliage of the last shows to best advantage in damp situations.

In these gardens perennial Lobelias are planted in beds of Azalea mollis, where they make a good show when the Azaleas are over, and also blend well with the autumn foliage of the latter. They are quite at home in the damp, peaty soil without any manure.

The Syphylitica types are hardy, but it is well to give the plants protection from frost in damp surroundings. The Cardinalis types should be wintered in cold frames; they will withstand a few degrees of frost if kept on the dry side. Firefly and B. Ladhams stand out pre-eminent amongst the crimson varieties, whilst Purple King and Blue Bird make a fine contrast. The old variety, Queen Victoria, is very effective when interspersed with the white variety Snow Queen. *R. Gardner, Heywood, Gardens, Cobham, Surrey.*

TROPAEOLUM TUBEROSUM.

As an outdoor subject, this plant, which was introduced from Peru about two centuries ago, has not been a success with me. In a warm soil and sunny aspect it is so easily retarded by drought that it does not flower until autumn is far advanced. On the other hand, plants in a cooler, richer soil with less sun develop much foliage and scarcely any bloom. Even tubers started indoors and put out in May do not grow quickly enough to be of much use.

Others may have been more successful with the plant, which might do well in a really fine, warm autumn. But my experience in the long run is that T. tuberosum is not worth growing, especially as there are many better and more satisfactory plants of the kind. The leafage is undoubtedly attractive, but the scarlet and yellow flowers seem to stop just short of being showy. *J., N. Wales.*

ALPINE GARDEN.

TRIFOLIUM UNIFLORUM.

This species is one of the few members of the large and widespread family of Clovers which are of value from the point of view of garden decoration. It is a dwarf perennial of tufted habit, with short, prostrate shoots of a purplish tint, bearing trifoliate leaves, on slender stems about one-and-a-half inch in length, which are marked on the upper side with single, shallow grooves. The leaflets are ovate, pointed, with sharp-toothed margins, and are up to half-an-inch in length. They are quite attractive in themselves, being of a rich green colour, lightly blotched with dark purple, slightly clothed with silvery, adpressed, silky hairs upon the upper surface, and glabrous beneath.

The flowers are both quaint and attractive, and in contradiction to the name, are usually borne in clusters of three during May and June. The corolla is about twice the length of the calyx, and consists of a prominent rose-lilac standard and either pale yellow or white wings and keel. It is a dainty little plant (Fig. 146) probably somewhat variable in floral colouring, and suitable for a well-drained, sunny position in the rock garden, or for pot culture in the alpine house, being free both in growth and production of flowers. It is well illustrated and described in Sweet's *Flower Garden*, Vol. v, but is seldom referred to in other standard works. *A. G. F.*

RANUNCULUS AMPLEXICAULIS.

Ranunculus amplexicaulis is one of the very best of the hardy Crowfoots; it is fairly common in the Alps and the Pyrenees. Unlike some members of the genus, it keeps to its allotted space without crowding out its neighbours. Under suitable conditions it attains a height of about two feet, and its large flowers—often an inch or more in diameter—are produced freely and are very pleasing during April and May; they are pure white with bright yellow centres.

The leaves are of a glaucous grey-green, and, as the specific name indicates, stem-clasping. The radical leaves are lanceolate and stalked.

A rather heavy, moist rooting-medium provides ideal conditions for the perfect development of this plant; it will, however, grow in less congenial surroundings, but the size of the plant and flowers will be reduced.

This Crowfoot is a very desirable subject for the rock garden, wild garden or flower border. *T. H. Everett.*

TRILLIUM SESSILE.

Trililum sessile, the Trinity Flower or Wood Lily, often flowers in March, when its blossoms are highly appreciated, but the ordinary forms of T. sessile have dull brown or brownish flowers. The variety T. sessile californicum is more beautiful than the type and comes nearest to rivalling T. grandiflorum. It has white flowers of much beauty, set almost stemless above the leaves of the plant. They are not so snow-white as those of T. grandiflorum, being more of a creamy tint and, in my estimation, the claim of some that T. sessile californicum is superior to T. grandiflorum cannot be maintained. But its earliness is a great asset in its favour, and where more than one Wood Lily can be grown T. sessile californicum should be added. The plant is not difficult to cultivate; it should have partial shade and a fair amount of moisture. T. sessile Wrayi is inferior to T. s. californicum, as the flowers are generally greenish. Propagation of these Wood Lilies is effected by division after flowering. *S. Arnott.*

TREES AND SHRUBS.

BERBERIS JULIANAE.

This Chinese Berberis forms a strong, dense, evergreen shrub, and is suitable for use as a specimen plant or for grouping. Never before have I seen this shrub so finely in flower as this spring, for at almost every node there is a cluster of blossoms.

As a specimen plant it attains to a height of eight feet to ten feet and even more through; it extends by throwing up strong growths close to one another.

The young shoots are grey and slightly angular; they are armed with strong, three-parted spines, and carry bright dark green foliage. The leaves vary in size and shape, the greater proportion being about three inches by one inch, sublanceolate in shape, margined with fine, sharp spines; other leaves are oblanceolate, with the leaf blade tapering to the very short petiole. The veins are distinct and raised slightly above the leaf surface, and less so on the pale green under-surface. As the winter buds open, the scales that cover them are attractively red.

The flowers develop in rather large clusters for a Berberis, and number from ten to twenty; they are bright yellow. The thin pedicels emit a pollen-like odour. The fine weather during the time the plants have been in flower may result in a fine crop of berries which have not been plentiful in past years, for late spring frosts are inclined to damage the flowers. The fruits are black and pruinose, half-an-inch long, narrow, and contain usually one seed in a deep crimson pulp.

As this Berberis is offered in the Wisley distribution list, I commend all who have the chance to avail themselves of the opportunity to secure it. *C. F. C.*

SYCOPSIS SINENSIS.

This evergreen, winter-flowering shrub is of recent introduction from China and should be included in every collection. It has a neat habit and attains a height of about eight feet. The leaves are coriaceous and from two inches to three inches long. The species is perfectly hardy and requires no special soil.

The reddish-yellow flowers are produced in rounded heads from the axils of the leaves, during January and February. Whilst not so striking as the Witch Hazels, the curious, rounded flower-heads, and the fact of the plant being evergreen, are points of interest. *S. R. D.*

RHODODENDRON LUTESCENS.

Captain Stewart, Shambellie, Newabbey, Kirkcudbrightshire, has for some years been keenly interested in the species of Rhododendron, of which he has an exceedingly good collection, many having been raised at Shambellie from seeds. Many of his seedlings have not reached full flowering size, but their healthy, vigorous appearance gives a promise of plenty of flowers in due course. I had the pleasure of visiting Shambellie recently, and at that time, the only Rhododendron species in bloom was the graceful R. lutescens, of which there is a good specimen in the grounds near the house. The plant was in full flower and carried an abundance of its charming pale-yellow flowers, which are of the most elegant form.

At Shambellie, there is an admirable setting for these grand shrubs. They are planted in comparatively open places in the woods near the house, and R. lutescens looked exquisite with the ground rising behind it like an amphitheatre and huge granite boulders partly covered with moss as a foil to the plant. *S. Arnott.*

ORCHID NOTES AND GLEANINGS.

MASDEVALLIA IGNEA.

This free-flowering species, with its many varieties, bears its bright flowers on erect stems, eight to twelve inches long. The colour is bright cinnabar-red, with crimson veins. The upper sepal ends in a deflexed tail, while the two lower ones are merely pointed.

The plants do not form pseudo-bulbs as so many Orchids do, and under cultivation they require cool, moist treatment all the year round. Water may be partly withheld during the winter months, but on no account should the plants become dry. In summer, they require a liberal supply of water and must be protected from the strong rays of the sun.

A good potting medium consists of equal parts of Polypodium and A1 fibre, mixed well with Sphagnum-moss, crocks and charcoal, to ensure free drainage. Pots of four inch size are very suitable, and when the plant is potted, it is a good plan to surface the compost and the growing crowns with Sphagnum-moss. This will require renewal during the summer months but when the Sphagnum threatens to cover the plant, it should be removed and the crowns again inserted.

M. ignea is a useful companion to M. coccinea and its varieties, and is valuable, although its merits in this respect are not widely known, as a plant for table decoration. *J. Robbie.*

OPHRYS APIFERA.

The Bee Orchid is one of the most interesting and beautiful of the British representatives of the Natural Order Orchidaceae. Not by any means common, it is found most frequently on dry, chalky pastures in the southern and eastern counties of England; it also occurs more rarely in other parts of England and in Ireland.

Usually three to six flowers are produced on the spikes, during June, but occasionally so many as seven or eight flowers are borne on each spike. The sepals are either pink or pale green or white marked with pink. The petals are smaller and narrower than the sepals; the lip is broad, convex, and of a rich velvety-brown colour, with paler markings." It does not require a very powerful imagination to see the likeness between the flower and a humble bee at rest.

When collecting this plant for naturalisation, it would be a great mistake to lift it when in flower; a far better plan is to mark the position of the plant for removal at a later date, and then to dig it up with the greatest care, without damaging the tubers. As seeds are freely produced they form a ready means of increase and this method is to be preferred to the practice of lifting plants from localities where they are at all scarce.

A sunny position in the rock garden suits the Bee Orchid admirably, and the compost in which it is planted may consist of a rather heavy loam with the admixture of some limestone or chalk. A carpeting of some dwarf alpine subject aids in providing suitable conditions for successful growth. *T. H. Everett.*

INDOOR PLANTS.

SALVIA GREGGII.

This very pretty Sage is not quite hardy, except in very favoured localities and, as with its brightly-coloured congener, S. Grahamii, it is wise to propagate the plant annually. Cuttings root readily if inserted during the late summer.

The flowers are produced, six to eight, in short racemes; the corolla is a telling shade of carmine. The linear leaves are coloured a rather dull green, and the plant is decidedly ornamental, making a good subject for a cool house, especially when planted out. The average height is three feet. S. Greggii was introduced from Northern Mexico in 1885, and is figured in *Bot. Mag.*, tab. 6812. *R. E. Arnold.*

AUDOUINIA CAPITATA.

This plant was formerly known as Diosma capitata, a name under which it was described by Linnaeus, but it is not now even included in the same Natural Order as Diosma.

It is a Heath-like plant from South Africa, suitable for cultivating in the cool greenhouse. In the early part of the year the erect branches are terminated with corymbs of small, pinkish-lilac flowers which remain in good condition for a considerable period.

A compost made of fibrous peat, loam and sharp sand forms an excellent rooting-medium, although the addition of peat to the potting soil is not so important as is the case with Ericas, and the Audouinia will thrive quite well if leaf-mould is substituted. Practically no pruning is required, as the plant naturally forms a shapely specimen.

Propagation is effected by cuttings of young wood treated in the same manner as those of Heaths, but Audouinia cuttings strike much more readily than do those of Heaths. *T. H. Everett.*

SPRING FLOWERS IN REGENT'S PARK AND HYDE PARK.

Both in Regent's Park and Hyde Park spring flowers in variety are contributing to the enjoyment of visitors, and the display promises to last for some time to come. The Daffodils are nearly over, but these early flowers are being followed by a variety of beautiful Tulips, of which there are very large beds in both parks.

The wide grass border in front of the herbaceous border on the west side of the flower garden in Regent's Park has been very effective for some considerable time, with Daffodils and Hyacinths in the turf. The latter flowers having done exceedingly well naturalised in this way, and their effectiveness has been intensified by wide planting in irregular groups.

The clearance in front of the shrubbery by St. Andrew's Gate, where the Dahlias are grown later in the year, presents a galaxy of colour from great plantings of Daisies, winter-flowering Pansies, Polyanthuses, Wallflowers and Stocks, and it was a happy idea to spring this surprise on the visitor immediately on entering the Park from this end. Some of the beds in the flower garden are also gay with spring flowers, the most effective being those planted with single Wallflowers, with double Wallflowers, with Cheiranthus Allionii, which is a little backward this season, and only just now expanding its blossoms; with the Spetchley strain of Polyanthuses and with Primula malacoides.

Probably the most effective of the whole of the beds is the large circular one of Polyanthuses, every plant of which seems to be a perfect specimen, and bears a wealth of flowers, whilst the colouring of the whole is most varied and harmoniously blended.

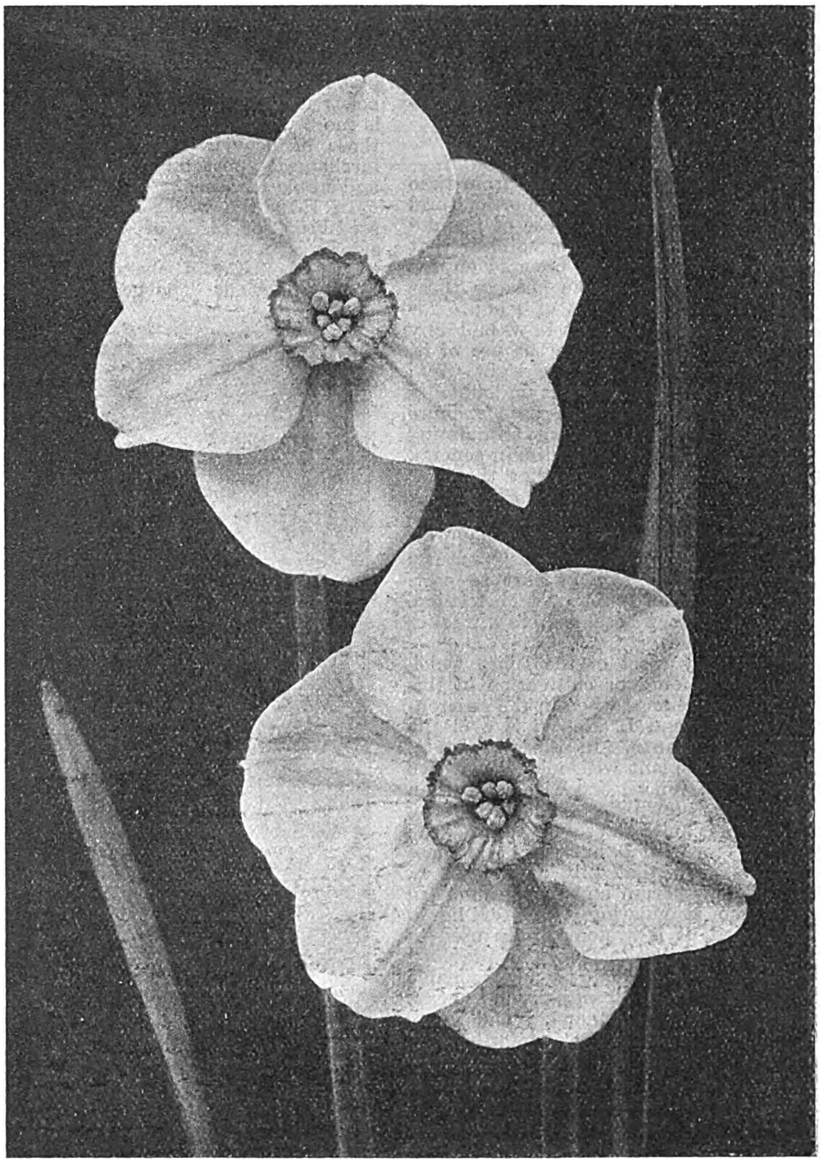


FIG. 147.—NARCISSUS PAPYRUS.

R.H.S. Award of Merit, London Daffodil Show, April 13, 1926. A beautiful, firm-textured poeticus variety shown by Mr. A. Secrett. Selected for trial at Wisley, for Market purposes, on April 26. (see p. 310).

The bed of Primula malacoides presents a very pretty sight from the distance, appearing like a soft carpet of the palest pink, and the use of this plant for spring bedding may be recommended to others.

Hyde Park has most to offer, in the way of flowers, in the beds near the Diana Fountain by Hyde Park Corner. Here, again, is a very fine circular bed of mixed Polyanthuses equalling the one in Regent's Park in the beauty, effectiveness and grouping of the plants for colour effect.

Broad patches of colour are also provided by beds of such early Tulips as Couleur Cardinale, Pride of Haarlem and Rising Sun, the last a beautiful golden variety well adapted for bedding and one of the earliest to bloom. Others, such as Pride of Haarlem and Farncombe Sanders, are following closely and others that are later still will carry on the display for a long time to come. The other principal subjects in flower are Pansies, Daisies, Wallflowers and Daffodils; seen in the distance, a corner in the foreground of one of the shrubberies appears to be a blaze of gold, which a close up inspection reveals to be Cloth of Gold Wallflower; it is one of the most conspicuous objects in the Park. But the most interesting of the various subjects in bloom is Daphne Cneorum, of which there is a big group in the same shrubbery border as that which contains the golden Wallflowers. It is very interesting to see this choice plant succeeding so well in a London park.

There are other beds in The Dell gay with spring flowers of a similar nature, but the grandest effect has been in the grass next to Park Lane, where thousands upon thousands of Daffodils have provided an almost continuous sheet of flowers along nearly the whole of this end of the Park for some weeks past.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden W.C. 2

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

LILIES AND MANURE.

JUDGING by much that is written from time to time in the columns of the horticultural press in deprecation of the use of manure in the cultivation of Lilies, it seems clear that a good deal of misconception prevails on the subject. This may possibly be because those who condemn the employment of manure for the particular purpose may not have had any extended personal experience in the use of it, or may not have used it in the right way; but whether that is so or not, it is undoubtedly the case that those who have used manure intelligently find that it has the same stimulating effect on Lilies as it has on plant life in general. That, however, does not mean that they use it indiscriminately in the cultivation of the genus, for there are many garden soils which need no heartening. Then, too, the charm of many of the more refined species lies in their natural elegance and the proportion of part to part. That proportion is soon upset by high feeding, and then the plants may become gross travesties of their natural selves.

In a general way most of the Lilies which lend themselves to outdoor cultivation in this country undergo a change when in the environment of a garden, and L. Henryi is a classic instance of such change. In the wild state, Henry never saw a plant with more than five flowers, nor E. H. Wilson one with more than ten. Yet, when grown in gardens, twenty blooms to a stem is quite an ordinary allowance; it is the same, too, with L. auratum, and those who habitually grow that Lily as well as L. speciosum, L. longiflorum and L. tigrinum in pots, know the stimulating value of liquid manure; indeed, it is systematically used in the cultivation of Lilies in pots, and provided the process is not carried to unreasonable lengths, as it sometimes is, especially in the case of L. auratum, the Lilies named, and many others, suffer no loss of beauty or interest from the stimulation. In fact, except where naturally rich soil is available, it is doubtful if what is called high cultivation is possible without manure of some kind. The same process is noticeable in Nature when the dwarfed, uni-flowered, thin-leaved Lily of dry, stony hill-sides drops its seed into a rich pocket and emerges as a floriferous giant, its stem clothed in leaves—incidentally, a veritable trap for students of herbarium specimens unaware of field conditions and lacking informative field tickets.

But there are manures and manures, and no gardener in possession of his senses would bring fresh stable, yard, or other animal manure into direct contact with Lily bulbs, nor would he use it in soil which is sufficiently rich without extraneous additions. There is no objection, however, to the use of such manure in the subsoil where it is away from all contact with the bulbs, but is within reach of the roots. Unbelievers can settle the point for themselves by planting a batch of any of the more robust Lilies over manure and a similar batch in the same soil but without manure.

In his *Notes on Lilies**, Alexander Wallace wrote :—"With regard to manure, it is generally held by Lily growers of experience that the application of fresh manure is fatal to the bulbs. We have found a mulching of thoroughly rotten manure during the winter months advantageous, but we cannot advise that manure, fresh or old, should be dug in when the bulbs are planted; liquid manure may be freely applied during the growing and blooming season. The Japanese, great Lily growers, give their bulbs a top-dressing of night-soil in the winter months." This sounds contradictory, for bulbs which will tolerate manure-water freely applied in the growing season and night-soil in the dormant season, will tolerate anything; and it probably did not occur to Wallace to make it clear that when dug in *below* the bulbs, manure is beneficial.

As Dutch nurserymen have long since found, cow-dung is an excellent manure for Lilies; if it is old and dry it may be broken up to powder and mixed with the soil in which the bulbs are planted; if new, it should be buried below the bulbs. This type of animal manure is more useful for light or sandy soils than for those of heavier texture, because it has no mechanical effect on the ground as has yard and stable manure.

In 1919, the writer made two experimental seed-beds for seeds of L. regale. They were side-by side, in a kitchen garden, slightly sloping to the south and sheltered from all winds by a high wall. The beds were ten feet long and one foot wide and were recessed two inches into the ground. Each was of the same prepared sterilised soil with the same subsoil, and while under one there was a four-inch layer of fresh cow manure at a depth of three inches from the surface, the other had no manure. The manure was simply so many "pats" shovelled off an adjacent meadow, dropped into place to the required thickness, and smoothed over with a spade.

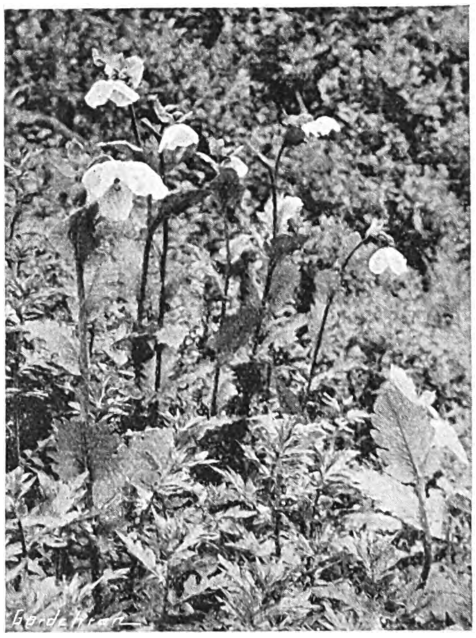


FIG. 148.—BLUE POPPIES (MECONOPSIS BETONICIFOLIA VAR.) IN AN ALPINE MEADOW IN THE SEINGHKU VALLEY.
(see p. 303).

The seeds were sown at the beginning of March, and the beds covered with sheltering boughs of Pine laid flat. At the end of April, this protection was removed, and an inch of fine leaf-mould and grit sifted over the surface of each bed. Each had identical treatment as regards watering and the removal of such few weeds as made their appearance.

The seeds germinated simultaneously in each bed, and so far as the eye could see, the seedlings grew neck and neck till the middle of August, when those in the manured bed appeared to have no advantage over the others. Thence onwards, however, there was a change, doubtless because, by that time the roots of the seedlings in the manured bed had reached the cow-dung; the manured plants gained quickly on the others, and by the end of September the difference was remarkable. When the bulbs were lifted at the end of October there was a much greater proportion of those of large filbert size in the manured bed than in the other. Three bulbs flowered at eight-and-a-half months from sowing in the manured bed and one in the other.

Famous Lily growers of the past generation, like Wolley Dod, Miles, Harpur Crewe, Mangles and Elwes, did not hesitate to use manure when they thought their plants would benefit thereby, and there are many references to the subject in the horticultural journals of the time. Writing in the *Horticultural Journal* fifty years ago, for instance, R. T. Clarke observed that "L. testaceum luxuriates in strong loam, heavily manured." When he first began cultivating Lilies at Wisley, Mr. G. F. Wilson, the famous amateur cultivator of the genus of the last generation, fought shy of manure, and was at pains to make it clear that the fine examples he so often sent to the shows of the R.H.S. were not due to the use of stimulants, as was generally supposed at the time. But later on he used manure freely for the stronger-growing species, and he may have been influenced by an incident which he reported in *The Gardeners' Chronicle** in the following words :—"A friend lately brought me from his garden in Norfolk a bulb of L. giganteum and told me how the Lily was grown there. As the treatment is rather different from what I have tried and heard of, and seems to be thoroughly successful, I requested a note of it, and this may, I think, be useful to some of your readers. The bulbs were planted by the side of a rich vine border, which had a heavy dressing of horse and cow manure. These have grown strongly, have flowered and seeded, while other bulbs planted near, but not in such rank stuff, do not make such large bulbs, and have not flowered."

L. giganteum responds to gross feeding, and the finest plants the writer has seen were growing over the carcase of a favourite pony, to which the Lilies were an appropriate memorial. No doubt the well-known carnivorous habits of this Lily were responsible for the story of the insane cultivator of the genus, whose plantations of L. giganteum were kept in unrivalled form by the bodies of his friends whom he murdered in order that they might furnish the necessary nourishment for the bulbs!

The use of natural manure—stable, farm, cow or pig—often brings with it a certain fouling of the ground by the introduction of insects which seem to regard Lily bulbs as their special province; to a greater or lesser degree the same may be said of leaf-mould, though not of peat-moss dust, and in a measure the evil may be met by the partial sterilisation effected by bi-sulphide of carbon. Where no alteration of the texture of the ground is required, potash is a most convenient stimulant for Lilies, for its use involves none of the disadvantages attaching to organic manures. In the form of wood-ash it is generally available in gardens of any size, and as potash is soluble, the wood-ash must be kept dry till it is needed. If ash is not available, kainit may be employed, or sulphate of potash, but the former should not be used for calcifugal species. The quantity usually recommended is 4 lb. to the rod, which means little or nothing to amateurs in general. But if they lightly powder the ground with potash so soon as the stems are a few inches high, and fork it into the surface soil about the stems, it will be sufficient. The writer has had entirely satisfactory results from the use of Adc, which has much the same mechanical effect on the ground as straw manure and a high manurial content as well.

Science insists that humus, in the form of peat and leaf-mould, has no manurial value, and the fact, so often noticed, that the basal roots of a Lily will fasten on the minutest piece of peat in the ground within reach, probably only means that the peat is better aerated than the rest of the ground. The same cause is doubtless at work to make the aerial roots of all stem-rooting Lilies fasten into a spongy superficial mulch of leaf-mould. This mulch should always be mixed with grit, or there is a risk that the plants may be smothered. The successful cultivation of most of the stem-rooting

---

* Second edition, p. 10 (1879).

* March 24, 1877, p. 277.

Lilies depends on the development of the roots at the base of the stem, and a mulch of spent manure mixed with leaf-mould and grit generally brings its own reward. The mulch serves a double purpose for it also shelters the stem roots from the sun; once these roots have been shrivelled by drought or sun-stroke the fate of the stem and flowers is beyond question.

In a general sense, the following Lilies benefit by the use of manure in the subsoil:—L. auratum, L. speciosum, L. tigrinum, L. monadelphum, L. Martagon, L. candidum, L. chalcedonicum, L. croceum, L. sulphureum, L. testaceum, L. Hansonii, L. Henryi, L. centifolium and L. giganteum. On the other hand, the Californian Lilies, with the exception of L. pardalinum and L. Humboldtii, are not of the class to which one would apply manure; nor is Farrer's variety of L. Duchartrei. L. philadelphicum, L. rubellum, L. tenuifolium and L. medeoloides, too, are better without it. *A. Grove.*

MR. F. KINGDON WARD'S NINTH EXPEDITION IN ASIA.*

X.—From Sub-tropical Jungle to Alpine Meadow.

In the course of an ascent from sub-tropical jungle to alpine meadow, social upheavals take place in the vegetation. At my base camp, for instance, no two trees of the same species kept company; there was almost infinite variety, each tree being surrounded by other species. Fifteen hundred feet higher up, where the forest is often equally dense, species become more sociable, more tolerant, and there is less variety. Magnolias and tree Rhododendrons own much of the land, and though they seem to get on all right together, they are very chary of letting outsiders stake claims. I passed through whole groves of Magnolia mollicomata (which is very like M. Campbellii), and here Rhododendron giganteum (or other of the 'Grande' series) and a tall tree 'Thomsoni' with pinkish flowers, formed the bulk of the forest.

Still higher, the forest consisted almost entirely of Abies, with an undergrowth of big-leafed Rhododendrons. Where the Conifer forest begins, a dense mixed tanglewood covers the more sheltered side of the valley. Here may be found R. aureum, R. strigillosum and other species; Viburnum Wardii, Magnolia globosa, species of Enkianthus, Acer, Berberis, Cotoneaster, Rosa, Pyrus, Prunus, etc. On the exposed flank, however, there is practically nothing but impenetrable thickets of Rhododendron, including species of the 'Souliei,' 'Sanguineum and 'Haematodes' type, with small colonies of the beautiful R. tephropeplum in the hollows of the cliffs and the 'Falconeri' species wherever Abies gets a foothold.

Lastly, we come to the highest alpine moorland, covered with a knee-deep carpet of 'Lapponicum' Rhododendron (three species), amongst which nestle still smaller colonies of R. rivulare and an 'Anthopogon.'

It would seem, then, that where the struggle between plant and plant is most bitter, a mixed association prevails, and that where the plant has to struggle chiefly against adverse conditions mass production results.

It was a rather stiff climb up the valley (Figs. 149 and 150), the path being rough, and in places very steep. Cattle go up, but cannot carry loads up the forest section. There was little in flower here, but I noticed a seventh 'Maddeni' Rhododendron—a small epiphytic shrub, of which I subsequently secured seeds, though I did not see the plant in flower (K.W. 7,606). A feature of this species was the shortness of the style—it was shorter than the capsule, instead of much longer, as usual in this section. R. Edgworthii, with large, snow-white flowers and red calyx was another common epiphyte, and a little higher up, R. megeratum, a pretty blonde, but rather diffuse in habit, was abundant. It is, perhaps, commoner on the cliffs than on the trees, and forms large bunches wherever water is constantly dripping, its brightly silvered leaves being not the least attractive part of it. A fourth epiphytic species, collected also in Tibet, was not seen in flower. R. sino-vaccinioides also flourished here at about 8,000 feet, and there were other shrubs besides Rhododendrons, chiefly Ericaceae though.

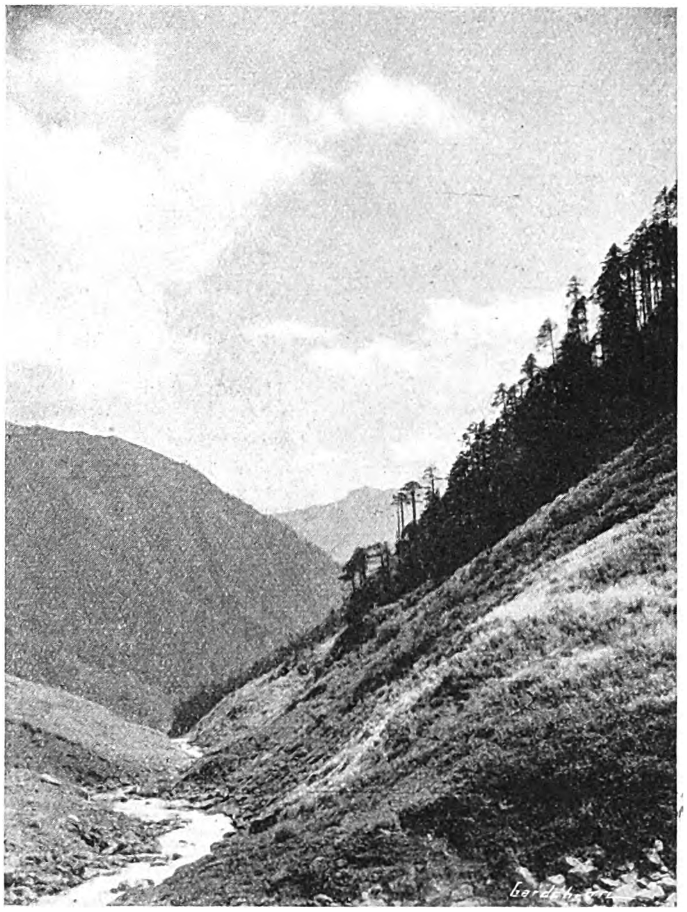


FIG. 149.—VIEW LOOKING DOWN THE SEINGHKU VALLEY FROM ABOVE THE YAK CAMP, AT 10,000 FEET ALTITUDE.

Late in the afternoon we emerged from the Magnolia-Rhododendron forest (the other big trees were chiefly species of Quercus and Juniper) into the first alpine meadow, where a very steep gulley had torn open the flank of the mountain, and erupted an immense cone of rubble, causing an extensive hiatus in the forest. Part of the conquered ground really was meadow, and part of it was covered with a dense growth of shrubs and small trees, including several species of Acer, and Salix, Hydrangea, Daphne, Rubus, Deutzia, Clematis, Tripterygium, etc. Huge tongues and slabs of snow choked every gulley and formed a solid bridge across the torrent. Rain fell in a steady drizzle, and we were wet, chilly and uncomfortable. However, there were some herd's huts here, and as it looked a promising field, and there were several gullies on either side, which I could climb easily, I decided to pitch my tent here and stay a few days before going into residence in my new hut, 1,000 feet higher up; besides, it was too cold to live comfortably much above 9,000 feet at this season of the year.

On the following day I had my first alpine climb, and despite the snow, found that many Rhododendrons and other flowers were blooming merrily.

One of the most splendid sights was the 'Haematodes' Rhododendron, K.W. 6,805, with trusses of six to ten drooping, bell-shaped flowers of deep glossy, blood-red, fluted at the base where the five pocket-glands are situated. The under leaf-surface is a bright cinnamon-orange, the upper surface a dark matt green. Some specimens fairly spouted flowers, for besides being entirely smothered, scarlet pools of fallen corollas lay beneath. The species grows between 9,000 and 11,000 feet, but not higher, and the flower colour varies, being sometimes much paler—carmine or almost pink in extremes, but then the glands stand out as hectic, blood-red spots. It varies in size, too, from a good-sized bush eight or ten feet high to a scrubby plant. Vieing with it in colour, and differing chiefly in foliage is the scarlet 'Sanguineum' (K.W. 6,831), which forms extensive colonies of gnarled, dwarf bushes. It grew on the broken faces in long strips, and looked exactly like tongues of red-hot lava pouring down the mountain side.

An interesting and extremely beautiful shrub is R. tephropeplum (K.W. 6,834), which clearly is identical with a species collected out of flower in Tibet (K.W. 6,303). The leaves are a curious smoky grey beneath and the lolling flowers, in loose trusses of four or five, are a delicate shade of rosy purple. The plant is by no means common in the Seinghku valley, small colonies of it being tucked away high up in two gullies, on opposite sides of the torrent, and on the high limestone ridge above my base camp. It demands deep shade, and probably requires a good deal of shelter, although it grows at 10,000 feet altitude.

The dowdy yellow R. trichocladum was also in flower, and so was a pinkish 'Thomsoni,' and the handsome 'Falconeri.' The last two are forest trees, quite forty feet high. The 'Thomsoni' has a characteristic smooth, tawny-bronze trunk, on which no alien plant can find purchase, and the flowers are in large, globular trusses. Inside the forest it assumes a curious angular habit, due to the whimsical way in which the trunk branches; and from the lower limbs, the papery bark often hangs in weird rags and tatters. K.W. 5,732, from Tibet, would appear to be its nearest relative.

---

* The previous articles on Mr. Kingdon Ward's Ninth Expedition in Asia were published in our issues of August 14, 28, October 9 and November 20, 1926, and January 1, February 19, March 5, 19, and April 9, 1927.

The large 'Falconeri' (K.W. 6,818) is quite a good plant, with brave trusses of flowers which open pale pink and gradually fade to white; at the base of the corolla is a purple flash. The leaves are rich cinnamon beneath, as in the Tibetan 'Falconeri' (K.W.).

Another good species here was a small tree 'Neriiflorum' (K.W. 6,854). The flowers are pale orange, rimmed and streaked with fiery-red, giving them a fine flame colour. It is a smooth-stemmed, narrow-leafed species, with ascending, never erect trunk, growing on the steepest rubble banks smothered up in thickets.

I was also delighted to discover in the elfin wood forest of these sheltered cliffs the big-leafed 'Barbatum' (K.W. 6,855), identical with K.W. 6,302, from the Tsangpo Gorge. But again I had missed it in bloom. However, it *had* flowered here, which, apparently, it never had done in Tibet, and I got some seeds. The large size of the rounded leaves, with their long bristles, and the persistent leaf-bud scales, clothing the shoots for a number of years and giving them a curious senile appearance, heartily belied by the vigorous young leaf-shoots which squirt up in jets of coral-red and malachite green all over the tree in June, distinguished it.

On a wet and sheltered cliff, high up in the Rhododendron Fir forest, I found a few tuffets of a very curious, purple-flowered species, which I called 'Purple Emperor' (K.W. 6,884). The flowers are solitary, and of a curious, sharp, funnel shape, and the leaves very narrow, but not aromatic. It was distinctly rare and confined, so far as my researches went, to one gulley. With it grew a tiny 'Saluenense,' of which I found a solitary mat. It flowered later, but the snow bridge broke before that, and I was unable to cross the torrent and reach it until October, when I gathered two capsules of seeds off it (K.W. 7,523).

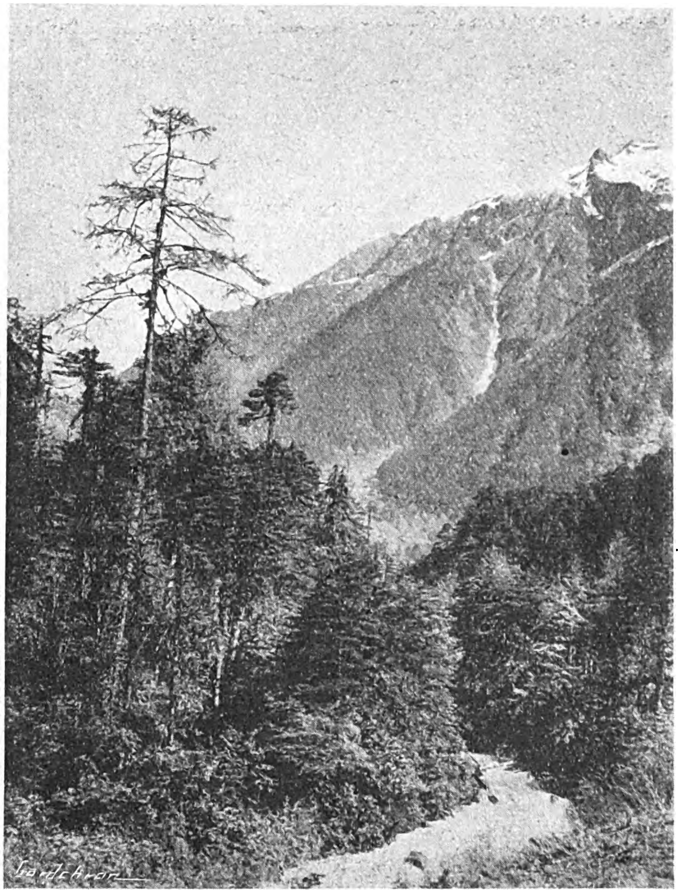


FIG. 150.—VEGETATION IN THE SEINGHKU VALLEY.

Big bushes of Rhododendron Falconeri and R. Thomsonii along the edge of the torrent, with Larch and Abies near them, at 9,000 to 10,000 feet elevation.

So much for Rhododendron species—those of the 'Thomsoni' and 'Souliei' type being particularly abundant, and being in some respects peculiar, deserve a chapter to themselves.

The flanks of the valley were very steep, and so densely forested, or rather bush-clad, that it was quite impossible to ascend, except where a stream had carved a passage. These were all choked with snow, and so long as the snow lasted, it was easy to climb them; but after the snow had melted it became a matter of great difficulty on account of the huge boulders which blocked the way. Also, after the first two thousand feet, the gullies became precipitous. On the sheltered side of the valley a line of escarpments made climbing on that side hazardous, especially in a mist, and while scrambling in the forest, unable to see my way, I several times found myself trapped, surrounded by cliffs which at first sight offered no route either up or down.

A common and beautiful tree on these cliffs was Viburnum Wardii, with great corymbs of snow-white flowers and handsome rugose leaves which turn vivid colours in the autumn. It was only in the depths of the forest, however, and especially where gnarled trees clung to the cliff face, that this species flowered, and when I came to collect seeds—the fruits are red to begin with and turn suddenly black—I found how few trees had borne flowers. Worse still, the birds had most of the fruit—it did not, as I believed, fall very easily, so it was probably birds which accounted for its disappearance. However, I collected some seeds, though Viburnums are notoriously difficult to raise from seeds, which do not travel well.

Rain fell fairly steadily while we were in this camp, and sand flies made life hideous. Naturally, it was impossible to have a fire inside the tent, and almost impossible to keep one alight outside. Still, I was well satisfied with the place botanically, and in the course of ten days spent here I explored the neighbourhood thoroughly, cliffs, gullies, forest and meadow, of which there was not much. The minimum temperature fluctuated between 43° and 48°, while the maximum shade temperature never touched 70°. *F. Kingdon Ward.*

NOTICES OF BOOKS.

A New Monograph of Colchicum.

The genus Colchicum is of sufficient importance in horticulture to warrant attention being called to an interesting new monograph* recently published in Bulgaria by B. Stefanoff. The author takes a wide generic concept and includes in Colchicum both Bulbocodium and Merendera. Since the monograph is not likely to be generally available in this country, the following synopsis of the classification proposed for the sixty-four accepted species is given.

SUBGENUS 1.—ARCHICOLCHICUM.

Section 1. Luteae. Species: C. luteum, Baker; C. regelii, Stef. (comb. nov.); C. hissaricum, Stef. (comb. nov.); C. robustum, Stef. (comb. nov.).

Section 2. Bulbocodiae. Species: C. szovitsii, F.M.; C. crocifolium, Boiss.; C. fasciculare, Boiss.; C. libanoticum, Ehrenb.; C. ritchii, R.Br.; C. schimperi, Janka; C. tauri, Siehe; C. serpentinum, Woronow; C. hydrophilum, Siehe; C. hirsutum, Stef. (sp. nov.); C. nivale, Boiss. et Huet.; C. biebersteinii, Rouy; C. davidovii, Stef.; C. catacuzenium, Heldr.; C. hungaricum, Janka; C. dorfleri, Hal.; C. macedonicum, Kousanin; C. triphyllum, Kze.; C. kurdicum, Stef. (comb. nov.); C. caucasicum, Spreng.; C. soboliferum, Stef. (comb. nov.); C. atticum, Sprun.; C. jordanicolum, Stef. (comb. nov.); C. sieheanum, Hausskn.; C. procurrens, Baker.

Section 3. Vernae. Species: C. vernum, Ker-Gawl.

Section 4. Montanae. Species: C. montanum, L.

Section 5. Cupaniae. Species: C. cupanii, Guss.; C. psaridis, Heldr.; C. boissieri, Orph.; C. pusillum, Sieb.; C. hiemale, Freyn; C. troodi, Kotschy; C. stevenii, Kunth; C. parlatoris, Orph.

Section 6. Filifoliae. Species: C. filifolium, Stef. (comb. nov.).

Section 7. Arenariae. Species: C. arenarium, W.K.; C. alpinum, Lam. et D.C.

SUBGENUS 2.—EUCOLCHICUM.

Section 8. Autumnales. Species: C. corsicum, Baker; C. micranthum, Boiss.; C. borisii, Stef. (sp. nov.); C. umbrosum, Stev.; C. laetum, Stev.; C. kotschyi, Boiss.; C. decaisnei, Boiss.; C. neapolitanum, Ten.; C. longifolium, Cast.; C. kochii, Parl.; C. lingulatum, Boiss. et Sprun.; C. haynaldii, Heuff.; C. autumnale, L.; C. lusitanum, Brot.; C. tenorii, Parl.; C. levieri, Janka; C. visianii, Parl.; C. turcicum, Janka.; C. variegatum, L.; C. latifolium, S.S.; C. speciosum, Stev.; C. bivonae, Guss.

A Latin description, a full synonomy, and the complete known geographical distribution are given under each species. A brief account of the position of Colchicum in the Liliaceae, a fairly detailed synthetic description of the morphology, a useful key to the species, and an index are also provided. There are no illustrations but two maps show the distribution of the species.

In his short summary, Stefanoff discusses the evolution of the genus. The section Eucolchicum he believes to have originated from the more primitive species of Archicolchicum by a process for which he suggests the name syngenesis. By this is intended development carried out throughout the whole geographical area, either by the appearance of local and sometimes converging species, or by the production of vicarious species very often linked by gradual transitions. Unfortunately, the term syngenesis has already been used in biology with quite another connotation, and the present writer has suggested that the hypothesis outlined above should be referred to as hamagenesis, a suggestion which Stefanoff has since accepted. There is a very close relationship between hamagenesis and Guppy's theory of differentiation. *W. B. Turrill, Kew.*

---

* B. Stofanoff: *Monografia na roda Colchicum, L. in Svorn. na Balg. Akad. na Nauk.* xxii. 1926.

ECONOMIC PLANTS OF THE BAY ISLANDS (HONDURAS).

(*Continued from p.* 270.)

The Chucho is a small tree found in the larger islands, but nowhere in large quantities. Its wood is nearly black in colour, very hard and practically indestructible; the termites never attack it. At the cays of Bonacca some house posts of this wood were pointed out to me which have been standing there in the shallow sea water for over twenty years, without presenting the slightest sign of decay. The tree is also said to be found in the Cayman Islands, but it does not grow on the mainland of Central America.

The Physic nut or Piñon (Jatropha Curcas, L.) is a small tree of tropical American origin. It grows readily from cuttings, and is made use of as fence posts, as it has the advantage of being untouched by cattle or horses. Its fruit consists of four to six capsules each containing two or three Almond-like, oily seeds, about one inch (2½ cm.) in length. These seeds are used as a purgative, two or three of them making a dose. They act also as an emetive. No commercial use is made of these seeds, but from the Cape Verde Islands they are exported and the oil pressed out in Europe. The bark yields a yellowish milk which may be used to clean the teeth, having, furthermore, the property of calming toothache. The ignorant natives claim if a cut is made into this tree about noon on Good Friday, the bark will yield a blood-like liquid instead of the yellow one. This belief is also held by the Indians and Ladinos of the mainland.

The Arrowroot plant (Maranta arundinacea) known as Sagú and Yuquilla in the local Spanish, is cultivated in small quantities for the sake of the nutritious starch, an excellent food for children and invalids, which is obtained from the thin, long, whitish tubers. In certain parts of America, the root of this plant was applied by the Indians to wounds, in order to counteract the poison put on arrow tips, hence the name.

The Arrowroot is a small, herbaceous plant of tropical American origin; it reaches a height of two to three feet and produces a crop in less than two years from the date of planting. Its leaves are long, oval, somewhat lance-shaped, and of a hairy appearance, but there is also a smooth-leaved variety. It bears small, white flowers, which are followed by berries of the size of small Gooseberries; these flowers are sometimes picked off in order to improve the size and quality of the roots.

Considerable labour is connected with the making of the starch. First the root is washed and all the skin scraped off. It is then crushed, water added, and passed through a sieve in order to separate all the fibrous parts. The starch settles at the bottom and the water on the surface is poured out. The process of mixing the grated root with water and passing it through the sieve is repeated several times in order to produce clean, pure starch. After the last washing, all the water having been removed from the starch, the latter is dried in the sun for a couple of days, and finally stored in air-tight containers.

The Arnotto, Annatto, Achiote or Achote (Bixa Orellana, L.) is a small plant of tropical American origin that has cordate leaves and bunches of large, yellow flowers like those of a Rose. The outer covering of the seeds is fleshy and furnishes a red or yellowish-red colouring matter, which the Central Americans use to colour foodstuffs and beverages (Rice, tamales, butter, etc.). The English-speaking natives use it for this purpose to a smaller extent. The Miskito or Mosquito Indians of the mainland do not condiment their food with Arnotto, but the females smear the dye on their faces in order to keep flies and other insects away.

Different kinds of Chilies or Red Peppers (Capsicum sp.) are cultivated in the Bay Islands, especially by the Ladinos. The larger, or "sweet" Chilies (C. annuum, L.), of which several varieties are grown, are eaten as vegetables. These are annual plants. There are also different, semi-wild-growing perennial shrubs (C. frutescens or C. baccatum), producing very small and exceedingly pungent fruits which are used in Chile sauce. *Edouard Conzemius, 33, Boulevard des Batignolles, Paris.*

(*To be continued.*)

APIARY NOTES

This spring seems likely to add one more to the list of ungenial seasons of which England has so many. Up to the time these notes are being written the weather in the South of England has been such that on no single day has it been possible to open a hive. To talk of manipulation under such circumstances requires an act of faith. But the day will come when the bee-keeper will be able to examine his stocks and prepare them for the harvest. This preparation varies according to the character of the crop desired. For extracted honey it consists largely in allowing plenty of storage room. Some growers favour shallow frame supers, but the reason always seems obscure to me. A British Standard frame is not too large for extracting, and it has the immense advantage of being usable for either honey or brood; it may be placed anywhere in the hive. A shallow frame is of no use in the brood nest and can be used only in the super. Why then complicate one's work by using supers at all? Body boxes to the number required, piled one on top of the other, is the simplest and most efficient way.

If room is given before the hive gets crowded, and that room is ample, swarming should be a rare event. Many bee-keepers, however, think that ten standard combs are enough for the queen to use in breeding, whereas any good queen should be capable of making use of twice that number. So then, place a second body in position so soon as brood is found on six or seven frames, certainly when it is found on eight. Fill the second body with frames of foundation, but take two out from the centre. Put two frames of brood from the bottom body, with bees adhering, in their place; and the two frames of foundation, one on either side of the brood left in the bottom. In this way there will be brood in both bodies, and arranged in the shape of an inverted V. It is most important to keep the brood together, and never to separate it by putting foundation between frames and brood.

These remarks, elementary as they are, are prompted by the observations I have made, and am continually making, concerning the hives and equipment I see in the different apiaries I visit. Hardly ever do I find interchangeability. Yet every one of these operations demands it. Unless every body can be placed on every other body, every roof fit any body, floor boards made for use in any position, there can be no up-to-date management; and the bee-keeper is controlled by the bees, rather than the bees by him.

Standardisation, in the sense used by Dr. Phillips, of Cornell University, in this month's issue of *The Bee World* is not necessary nor even desirable. That every bee-keeper should use the same type of hive frame and section would be a mistake. Let every bee-keeper find out for himself which size of hive suits his particular district; but, after that, let him see to it that he never introduces another, and if, in error, he has already made that mistake, let him begin standardisation in his own place, weeding out all misfits, and gradually getting together a sufficient stock all of one pattern. In the south, I find that M.D. body boxes holding ten frames are suitable for sections, and British Standard hives holding twelve frames are suitable for extracted honey. Of the latter, three body boxes are allowed to each stock, and for the former, four crates of thirty-six sections to place above one M.D. hive. In a poor season like last year these are not all required, but in a really good season they are.

If the M.D. frame is not in use for sections, then allow two body boxes of B.S. frames to each stock until the honey flow, and then reduce to one, and pile up supers.

A word of warning may be given in conclusion. Now is the time to watch minutely for American foul brood. No disease is so terrible. If any sunken cappings are observed, any cells the eggs in which are not hatching out normally, or any larvae discoloured, take immediate steps to have a close examination made by a microscopist. Treatment is possible, if the disease is diagnosed early and prompt attention given, but once neglected it will spread through an apiary, and through whole districts like a bush fire. Shaking, starving for three days, burning all combs, and scorching of all fittings and hives, then placing the bees on foundation, will generally clear out the disease, but nothing less will suffice. To do this at the beginning of a honey flow is best, for the bees can build out combs quickly, rear a fresh and healthy brood nest, and gather enough stores for winter, and sometimes even a surplus. Moreover, there is then less danger of robbing. We are told the disease is spread more by robbing than in any other way. Indeed, it is owing to robbers that such difficulty is experienced in keeping apiaries free of the scourge, for in honey from a diseased stock there are millions of spores, any one of which can set up the disease in a healthy stock. Unlike Isle of Wight disease, it is a larval complaint, although the spores have been found by Cheshire in the ovaries of a queen. Whether adult bees can carry it therefore, apart from honey they have robbed, is an enquiry still waiting the investigator, but we do know the spores are carried by adult bees in honey from a diseased colony.

Therefore, it is well to shake before a honey flow, when there is a minimum of honey in the hive, but when new honey will be available to the bees immediately the starving treatment is at an end and the new combs have to be built. *J. Marie.*

EFFECT OF SHADE ON APPLE SCAB.

For the last two seasons I have made observations on the existence of Apple Scab, which seem to afford evidence that trees receiving considerable shade during part of the day produce fruits very much freer from scab than do fully exposed trees. The varieties which suffer most with me are Lord Derby and Newton Wonder. In a row of the former an end tree is growing under the shelter of some big Larch trees. It receives shade from 2 p.m. until near sunset. The tree has suffered from competition with the Larch, for it is much smaller in size than others in the row. It, however, bears very well, and always good, clean fruits in great contrast, in this respect, to the rest of the row. By the north side of a big shed I have another tree of Lord Derby. It receives shade from the shed and other trees for a considerable part of the day. It is a splendid bearer of fine, big, clean Apples. Another Lord Derby on the other side of the shed, and receiving full sun, produces a very scabby lot of fruits every year.

A neighbour grows some very fine, clean fruits of Lord Derby on trees that are completely cut off from bright light on the south side by a hedge as high as the trees.

I always pick my best and cleanest specimens of Newton Wonder from a row of low bush trees, shaded on the west by other Apples, and on the east by Raspberry canes that grow as high as the Apples. Other fruits of Newton Wonder in exposed parts are, unfortunately, always affected by scab.

Of course, I shall be told that there is nothing in my suggestion, and that, on the contrary, shaded trees, by remaining wet for longer periods, will be more likely to give scabbed fruits. I can only reply that I have stated facts, and that there is, at any rate, an analogous position with regard to Coffee Leaf Disease. The spores of this fungus are said to germinate only in a film of water on a leaf. Therefore, one would suppose that trees exposed to full sun would be most free of this disease. Yet in more than one Coffee-growing country shade is planted over the Coffee, as it is said to escape disease best when shaded.

I have made experiments in shading fruit and fruiting branches, but with no result. It seems clear that if shade is beneficial in this respect, it is only by its effect on the growing tree, and not on the fruit itself. Were it otherwise, one would find clean fruit on every tree in positions where it was protected.

I shall continue my observations and write these notes in the hope that others of your readers may be induced to do likewise and report their conclusions. *E. Brown, Hillside, Doddington, Sittingbourne, Kent.*

VEGETABLE GARDEN.

BEET.

This useful salad plant succeeds best in a somewhat light soil, and in common with most other root crops, should not be grown on freshly-manured land. Early sowings may be made in the open towards the end of March or early in April, but only a limited quantity is necessary to supply young, partially-developed roots for mid-summer requirements. Sow in rows made twelve to fifteen inches apart, and thin the seedlings in the first instance to three inches, and later remove alternate plants in the rows so soon as they are large enough for use. Large, coarse roots often result from sowing too early, therefore the maincrop should not be sown until about the first fortnight in May, according to the locality. Sow in rows made fifteen to eighteen inches apart, and when thinning, adopt the same plan as advocated for the earlier sowings, but allow a little more space between the plants.

Beet-root transplants fairly well under favourable weather conditions, and, fortunately, the crop is not subject to any serious pest or disease.

Varieties vary considerably in the amount of leaves they make, and in some instances this is very large in proportion to the root.

There are three main types, namely, Round, Intermediate and Long

The type grown will depend on the nature of the soil, the requirements of the establishment, and the season of sowing. The round varieties are earlier in maturing and best adapted for uncongenial soil.

Good representatives of the round type are Crimson Globe and Egyptian, these being suitable for both early and late sowing. The Intermediate type is not in great favour, but when desired, Feltham Intermediate may be recommended.

There are many splendid varieties of the long type, such as Cheltenham Green-Leaf, Dell's Crimson-leaved and Northumberland. These are excellent garden Beet in that they make nice, clean roots with good coloured flesh, and not a large amount of foliage.

Towards the end of October the roots of the maincrop will be ready for lifting, and care should be exercised in handling them to prevent bruising them. No trimming should be attempted beyond twisting off the leaves a little above the crown. The roots should be stored in sand in a cool shed or in clamps. On well-drained soils in the south, a sowing of a round variety made at the end of June or early in July will furnish roots of a medium size by the end of October, and these will be superior to the larger roots of the maincrop for spring supplies. Lift and store them in the ordinary way, or, if desired, allow them to remain in the ground, but protect them during times of severe frosts with dried Bracken, Fern or similar material. Where the demand exists, Beet may be sown in slight warmth in February but, being a plant that is not very amenable to forcing, it requires much care to produce a satisfactory crop under glass. Better results may be obtained by making a sowing in a cold frame early in March, dispensing with the frames later in the season. *J. Wilson, Wisley.*

TOMATO ESSEX WONDER.

This variety may be highly recommended for outdoor culture, for it is a sturdy grower, sets its fruits freely, and is a prolific cropper. The foliage is clean-looking and healthy, the fruits of good colour, shape and flavour, and fruiting plants are an acquisition to any garden. It is also hardier than most varieties, doing well in the open garden, and ripening its fruits early. *R. Gardner.*

SOME UNCOMMON VEGETABLES WORTH GROWING.

(*Concluded from p.* 290).

Salsify (Tragopogon porrifolius) is sown in the open at the end of March or early in April, in drills made one inch deep and twelve inches apart. This crop does best in good, deeply-dug, sandy loam, with a liberal layer of manure from twelve inches to fifteen inches below the surface. Thin the plants to five inches asunder so soon as they are large enough to handle, and hoe the surface soil regularly during the summer. The roots are fit for use in October, and it is usual to lift and store a portion of the crop in sand during November, the remainder being left in the ground to be dug as required. If treated like Chicory, the blanched foliage makes a useful salading. The roots are delicious if properly cooked and served with butter.

Scorzonera (Scorzonera hispanica) is not much grown in this country, but is prized on the continent and might well be introduced, as a novelty, into more English gardens. The main point in the cultivation of this crop is to obtain large, clean roots. To grow good roots, trench a piece of ground and mix a liberal amount of half-rotted manure in the bottom spit, taking care that there is none in the top spit. Early in April prepare the surface as a seed-bed, and sow the seeds in shallow drills made fifteen inches apart, three or four to a patch, putting each patch about a foot apart in the drill. Keep the crop clean and it will be fit for use in September. Lift the roots as required, in the same manner as Parsnips.

If desired, a second sowing may be made in May. To cook the roots properly they should first be scalded, then scraped and thrown into water containing a few drops of Lemon juice, allowing them to remain in the water for half-an-hour. Boil them in salted water, in the same manner as Carrots, until they are quite tender, and serve with white sauce. If left to get cold, they may then be sliced and fried in butter.

Seakale Spinach, or Silver Beet (Beta Cicla), is easily grown, long lasting, and extremely hardy. It may be had in every month of the year, except during the dormant season—January to March. The large, fleshy leaves contain a very marked, white midrib. This midrib, when stripped of the green part, is boiled separately and served like Seakale, on toasted bread, with white sauce over all. The Seakale flavour is not so pronounced as in the case of Couve Tronchuda, but is much more delicate. Some people prize it very highly as a delicacy. The green part, stripped from the midribs, may be boiled and used exactly like true Spinach (Spinacea oleracea), but has a slightly stronger flavour, inasmuch as it contains a greater precentage of iron. It is delicious when boiled, like Cabbage, in bacon-water.

Seeds may be sown in the open at any time from the end of March to the end of July; plants from a March-sowing produce edible leaves from June to July, while July-sown seeds will give edible plants in the following April.

Seedlings are easy to transplant if they are well watered for some few days after transplanting; transplanted seedlings, in fact, give better results than seedlings not so dealt with. Beta Cicla may be grown even in a cold Peach-house, or vinery, by sowing in drills (like Spinach) so late as September, to produce young stock for planting out early in April, for consumption early in June.

A simple and effective way of growing Sweet Corn or Sugar Corn (Zea Mays) is to prepare a deep, rich bed in a sheltered and sunny situation; late in April or early in May, dibble in the seeds two inches deep, in rows made two feet asunder, and twelve inches apart in the rows; when the plants have reached a height of say, six inches, remove every second one. The cobs, or heads, should be gathered just when passing out of the milky state, round about August to September, and should be steamed for fifteen minutes. Steaming is much to be preferred to boiling.

Witloof or Brussels Chicory (Cichorium Intybus) is a great delicacy within the reach of all, even of those who possess only a very small garden. Sow the seeds in June in much the same way as Lettuce seeds, and treat the plants similarly to Lettuces. Early in November lift the roots, choose the best, shorten them to eight inches or ten inches, and trim off the leaves to within two inches of the crown. Then open a trench about eighteen inches deep, in which stand the roots upright, about two inches apart. Fill the trench with good, light, sifted soil, and cover whatever portion is required to be forced with from two feet to two-and-a-half feet of stable litter. Heat is soon generated from the dung and in about three weeks, blanched heads, resembling small Cos Lettuces, will be available to be eaten either as a salad or cooked and served in the same was as Seakale. *Captain E. A. Saunders, Havant, Hampshire.*

NURSERY NOTES.

LONGFIELD HOUSE NURSERY.

The Longfield House Nursery of Messrs. E. Stevens, Ltd., is one of the several extensive establishments in Cheshunt where Roses are grown on a very large scale for the production of flowers for market.

A visitor to such a nursery, not knowing what to expect, will be disappointed; when told that twenty-four acres of Roses under glass are to be seen, he would probably expect to find a gorgeous display of long-stemmed blooms. Such expectations would, however, not be fulfilled, for the flowers are cut almost so soon as they show colour and placed in water in the packing shed, there to await the attention of the packers before being dispatched to the various flower markets—London, Manchester, Paris.

Sometimes so many as two-thousand dozen blooms are dispatched in one day, but these numbers have been exceeded on occasion, although naturally the quantity varies with the seasons, and there are only small consignments during the dull months of the year when, however, high prices are obtained. At Longfield House all the Roses are planted out in large houses, and there is usually a pathway after each fifth row of plants, thus enabling the work of disbudding and general cultivation to be performed with ease. In round figures, 120,000 Roses are grafted each year for the purpose of maintaining vigorous, healthy stock for planting new and replanting old houses. The writer was somewhat amazed to find large numbers of old plants of Madame Abel Chatenay still vigorous and obviously economically useful, notwithstanding twelve years of almost continuous cropping.

Cultivation is reduced to a fine art and by a system of pruning, resting and feeding, no fewer than four crops of Rose blooms are obtained annually from established plants. Every plant is in the rudest health, and nowhere in this great acreage could a sign of mildew or other disease, or insect pest, be seen. Spraying and fumigating are items in the regular system of cultivation that places prevention before cure.

The soil at Longfield House is fairly heavy, a kind of brick earth, and is particularly suitable for Roses grown on such intensive methods; indeed, the renewal of the soil is seldom necessary. Cultivation extends to a depth of about eighteen inches, and half-decayed stable manure adds the necessary humus, this material being used for top-dressing both the new and the old plantations. Watering is done by means of a hose attached to convenient stand pipes and the water is provided by wells sunk 400 feet deep into the chalk below, and pumped up by a powerful, compressed-air engine to a huge, elevated tank, whence there is sufficient pressure for the service of the houses. Heating is by hot water, as Mr. Ernest Stevens is not enamoured of steam heating.

Roses grown in quantity at Longfield House are Ophelia, Golden Ophelia, Madame Butterfly, Liberty, Richmond, Premier, Madame Abel Chatenay, Molly Sharman Crawford and Roselandia, but the last-named variety is the one least grown. In addition, a few dozen varieties are being tested, otherwise the crops are limited to the varieties named.

Only one other subject is grown at Longfield House, *i.e.*, Tomatos, and of these there are about five acres under glass, and in the earliest houses the exceptionally clean and healthy plants are now commencing to ripen their earliest fruits.

The establishment of Messrs. Ernest Stevens, Ltd., is a self-contained one ; all the building, painting, glazing, etc., is done by a group of skilled workmen who are always busy, as scarcely a year passes without the erection of a new block of houses. The whole staff consists of about 160 persons. They constitute a happy family, in which Mr. Ernest Stevens and Mr. Dore take a kindly and personal interest.

A sports ground is provided on the estate and is large enough for two football pitches and two cricket grounds, in addition to bowling greens and tennis courts. The Athletic Club at Longfield House is a great institution, and on August Bank Holiday, when a sports carnival is organised, so many as 5,000 people have attended. This interest in the social life of the staff has its reflex action, as every member is proud of his association with Messrs. Ernest Stevens, Ltd., and that pride is demonstrated in the extreme cleanliness, tidiness and smartness seen throughout the whole establishment.

HOME CORRESPONDENCE.

The Temperate House, Kew.—Visitors to Kew will be surprised at a recent alteration in the Temperate House. An octagonal bed has been formed in the centre near the north entrance thus blocking up the grand vista, over six hundred feet in length, that was previously one of the finest sights at Kew. Why this senseless alteration has been made it is impossible to imagine ; it cannot be for the requirements of the plants as they grew well previously, and it is entirely opposed to the convenience of the public, while from a picturesque point of view it is decidedly wrong. Why has the alteration been made, and who is responsible for it ? *W. H. Divers, V.M.H.*

The Old Blue Polyanthus.—In your issue of April 2 there is a reference to an old blue Polyanthus grown many years ago in the Strathearn district and now extinct there. Your contributor suggests that this may have been Primula elatior coerulea or P. amoena (Bieb.). Is it not possible that it was the China Blue silver-laced Polyanthus, a variety which has now become very scarce and is little known ? I know nothing whatever about its origin, but it is certainly a garden-raised variety and not a wild form. I know that it was grown in an Aberdeenshire garden about 1878, and even then was regarded as a very rare and old-fashioned variety, worthy of every care in its cultivation. I do not think it is obtainable from any nurseryman at present, but I have been fortunate in getting two healthy plants through a lady in Ireland, after a long search. All the more modern blue Polyanthuses which I have seen are wholly blue, like the blue Primroses, but this old variety has the silver lacing beautifully defined, and must have been a great favourite with the enthusiastic florists in its time. The shade of blue is much paler than in blue Primroses—China blue well describes it. Is it possible that this variety was one of the ancestors of the Wisley Blue Primrose ? P. amoena seems to have been difficult to keep, and is not in cultivation now. Was it ever grown by Mr. G. F. Wilson ? It would be very interesting to learn how the old blue Polyanthus obtained its colouring. *Norman G. Hadden, West Porlock, Somerset.*

Deep Trenching.—I am thoroughly in accordance with Mr. Beckett and Mr. Streeter that deep trenching is essential in the production of good, clean vegetables of superb quality, both for the table and for exhibition. The honours and fame that Mr. Beckett has achieved for the past forty years at Aldenham on some of the worst ground I know in England goes to prove his contention. Such results as he has to his credit could only be obtained by trenching, supplemented by suitable materials, such as leaf-mould and refuse from frames, old Mushroom-beds and the like. The fullest benefits of deep trenching must not be expected to be obtained in the first twelve months. I notice Mr. Streeter advocates adding sand, but I do not wholly agree with him on that point, as there are no feeding properties, or very little else of use to plants in sand. *A. T.*

[Sand improves the texture of heavy ground.—Eds.]

Onions.—In his article on " Onions," (p. 254), I am glad to see Mr. J. Wilson admit that Ailsa Craig, Cranston's Excelsior and Premier are all of a similar type ; but why are all three names necessary for one variety ? I never found a dusting of soot alone prevent the Onion fly from depositing her eggs on the young Onions in districts where it is troublesome, although if two or three handfuls of air-slaked lime are mixed with the soot it will keep them away, but the dressing must be renewed after rain. I took charge of a garden where the soil was very peaty, and in which I was told it was impossible to grow Onions owing to attacks of maggots. When sowing time came the ground was so wet I thought the seed would never germinate, and, to facilitate germination and prevent the seed from rotting, I filled the drills after sowing the seed, with sand obtained from a lake on the estate. The sand was of a bright red colour and sharp. That season I never saw a single Onion attacked by the maggot, but in subsequent years when I did not use sand, I lost, on an average, half the spring-sown crop. I did not at first attribute the immunity from maggots to the sand, but after repeated trials, I had to do so. I have never since had to deal with a garden where Onion fly was troublesome enough to test whether any other kind of sand would be equally effective. Sand is a simple remedy and easily obtained, but whether there were special properties present in the sand I used, could only be discovered by analysis. *Grigor Roy, Stoke D'Abernon Manor Gardens, Cobham, Surrey.*

PUBLIC PARKS AND GARDENS.

Bridgwater Town Council has decided to spend £1,250 on laying-out Eastover Park.

Epsom Rural District Council has under consideration the question of the lay-out of the Brewery Meadow, Cobham, as a recreation ground.

Stone (Staffs.) Urban District Council has applied for sanction to borrow £750, the estimated cost of laying-out the recreation ground.

The Rochester Corporation has purchased land fronting Goddington Road, Strood, for a recreation ground.

Windermere Urban District Council has under consideration the acquisition of thirty-three acres of land on Windermere foreshore at Bowness Bay for an extension of the public park. The purchase price is stated to be £9,900.

SOCIETIES.

NATIONAL ROSE.

April 22.—While in extent of exhibits the Spring Rose Show fell somewhat short of expectations, the quality of the competitive exhibits was fully equal to that of its predecessors. Princess Mary, Viscountess Lascelles, paid an early visit to the show and was received by Mr. Arthur Johnson, the Vice-President of the Society, under whose guidance and attended by Mrs. Johnson, Miss Willmott and Mr. and Mrs. Courtney Page, Her Royal Highness made a prolonged and critical inspection of the show. As usual, the arrangements were admirable, and it was found possible to open the doors before the advertised time greatly to the convenience of the large number of visitors who were awaiting admission. Although considerable numbers of new seedling Roses were submitted for award very few were of outstanding merit, and only a Gold Medal was awarded. These new Roses included several which had previously received the Society's Certificate of Merit, but with the exception of the Gold Medal variety they were not impressive.

Gold Medal.

Charles P. Kilham.—This H.T. variety (Fig. 145) received a Certificate of Merit at the Autumn Show last year, when it was seen at rather better advantage. On the present occasion the foliage, though ample, was thin in texture and numbers of petals lacked colour, giving the appearance of early fading. But both conditions were probably due to hard forcing in order to have the blooms open for the show. But in spite of this the flowers were bright and attractive. The buds are long and pointed and the mature blooms are of perfect shape. The colour is elusive, but generally may be described as dull flame, or orange-scarlet flushed with salmon. The stems are long, and the variety appears to possess plenty of vigour. Shown by Messrs. George Beckwith and Son.

Other Novelties.

Two very attractive dwarf Polyantha Roses were shown by Messrs. Chaplin Bros. Susanne Miller bore plenty of trusses of small, semi-double, pink flowers, while Scarlet Leader had rather large flowers of the same type but of bright scarlet colouring. Although not submitted for award, Golden Salmon, another dwarf Polyantha, which was included in several trade collections, was exceedingly effective. It bears shapely trusses of bright orange-salmon flowers, and is of free habit. Diana Cant, shown by Messrs. B. R. Cant and Sons, is a showy H.T. variety which opens rosy scarlet, but fades to a light pink at maturity. Margaret Spaull, another novelty shown by Messrs. B. R. Cant and Sons, is a very large, solid H.T. of creamy colour flushed with dull pink. Desmond Johnston, a novelty from Messrs. S. McGredy and Son, is a very pretty rose-pink and gold H.T. which appears to be of distinct garden value.

Groups of Roses.

As usual, the large trade groups of Roses were exceedingly effective, and they attracted and held the admiration of Rose lovers throughout the day. Although there was only one circular group of pot Roses, it was especially effective, and Messrs. Chaplin Bros. were deservedly awarded the first prize. From a groundwork of profusely flowered, dwarf Polyantha varieties, such as Golden Salmon, Susanne Miller, Superba and Ellen Poulsen, there rose standards of Dean Hole, Mrs. Henry Bowles, Margaret Horton, Rev. F. Page Roberts, J. G. Glassford and similar varieties which, in turn, were surmounted by taller plants of pillar Roses, principally Excelsa, White Dorothy and American Pillar. Messrs. Chaplin Bros. were also the only exhibitors of six Pillar Roses in pots, but, while they were awarded the first prize this exhibit did not reach the same high standard as their large circular group.

Keen competition resulted in the class for a group of cut Roses arranged on the staging, in which Mr. Elisha J. Hicks was an easy first.

He had a particularly handsome group composed of profuse pillars of Maréchal Niel, Climbing Lady Hillingdon, Madame Butterfly, Lady Reading, Coral Cluster and Paul's Scarlet Climber rising above generous stands and vases of America, Angele Pernet, Souvenir de Claudius Pernet, Mrs. George Norwood, Chas. E. Shea and other good garden Roses. Messrs. B. R. CANT AND SONS were second, and they had vases of Padre, Lady Wakefield, Mrs. Beatty, Golden Ophelia and Madame Butterfly in a fresh collection. Shot Silk, Padre, Souvenir de Claudius Pernet and Angele Pernet were well shown in Mr. GEORGE PRINCE'S third prize group.

Although there were only two exhibits of twenty-four exhibition Roses in not fewer than eighteen varieties, they were of very good quality. Messrs. B. R. CANT AND SONS were first, with an admirable collection of blooms which would have been worthy of favourable comment at a June show. Their collection included specimens of Mrs. Beatty, Marjorie Bulkeley, Margaret M. Wylie, Covent Garden, Mrs. Henry Morse and Bessie Chaplin. In his second prize exhibit, Mr. ELISHA J. HICKS staged really good blooms of Mrs. Edward Mawley, White Maman Cochet, Mrs. Elisha J. Hicks and H. V. Machin.

With blooms of Maréchal Niel of the high quality expected from him, Mr. A. T. GOODWIN won the first prize for twelve blooms of any one variety. Messrs. B. R. CANT AND SONS were second with a dozen delightful specimens of Mrs. Beatty, which, in addition to beautiful colour, were pleasantly scented. Mr. GEORGE PRINCE was third with a board of Mrs. Foley Hobbs which included the best bloom in the trade classes.

The baskets of Roses were not so numerous as at some former spring shows. Mr. A. T. GOODWIN was awarded the first prize for two baskets; one filled with his wonderful Maréchal Niel Roses and the other with equally good blooms of Frau Karl Druschki. Messrs. CHAPLIN BROS were awarded the first prize for a fine basket of unusually large blooms of Madame Butterfly. The first prize for a basket of one or more varieties was won by Mr. A. T. GOODWIN with his incomparable blooms of Maréchal Niel, while Messrs. B. R. CANT AND SONS were second with an attractive basket of mixed varieties.

AMATEURS' ROSES.

While the number of exhibitors in the Amateurs' classes were fewer than could have been wished, the quality of their blooms was all that could be desired, for it reached a high standard of excellence. The four groups of Roses arranged on the staging were well worthy of the great admiration they received. Mr. E. J. HOLLAND, Sutton, was first, and he included splendid vases of Mrs. C. Lamplough, Dean Hole, Madame Butterfly, Caroline Testout and Lord Lambourne. While the value of the second prize group of Mr. G. A. HAMMOND, Burgess Hill, was somewhat discounted by the absence of labels, the quality was very good, and his central vase of Mrs. Foley Hobbs was especially meritorious. Mr. J. N. HART, Potters Bar, the third prize winner, had an admirable basket of Maréchal Niel. Mr. HOLLAND also showed the best twelve exhibition Roses, and included almost perfect examples of Louise Crette, Mrs. Campbell Hall, Mrs. C. Lamplough and Dame Edith Helen. Mr. SYDNEY F. JACKSON, Epsom, was a good second, and his admirable collection contained, in a beautiful specimen of Mrs. Foley Hobbs, the best bloom in the Amateurs' classes. He also showed very good blooms of Wm. Shean, Augustus Hartmann and Frances Gaunt.

Mr. J. N. HART won first prizes with six blooms, in not fewer than three varieties and with very good specimens of Mrs. Foley Hobbs, for six blooms of any one variety. The best six blooms, open to growers of fewer than thirty pot Roses, were shown by Mr. F. W. ELCOCK, Carshalton, who included meritorious examples of Bessie Chaplin and Mrs. Foley Hobbs. Mr. SYDNEY F. JACKSON won first prize with six admirable vases of mixed varieties and with a fine basket of Maréchal Niel, in which class Mr. E. J. HOLLAND was a good second with Mrs. Foley Hobbs. Mr. N. OPPENHEIMER, Caterham Valley, and Mrs. COURTNEY PAGE, Enfield, won first prizes for baskets of mixed Roses.

ARTISTIC CLASSES.

The Dinner Table and other artistic classes were all well filled. In the open classes, Mrs. TISDALL, making artistic use of Roselandia and Maple foliage, was first in both the Dinner Table and the Bowl classes, and Mrs. L. R. MAY won both second prizes. In the Amateurs' classes, Mrs. COURTNEY PAGE, Enfield, added to her many successes by winning the first prizes for a delightful Dinner Table decoration of Roselandia, Maidenhair Fern and other foliage, and for a bowl of mixed varieties. Mrs. F. CHARLTON, Yiewsley, was second, and Miss M. WOOLVEN, East Grinstead, was third in the Dinner Table class. Mrs. A. D. RUFF, who used Roselandia effectively, was first in the class for a vase of Roses.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held on Thursday, April 7, the members of Committee present were Messrs. J. B. Adamson (in the chair), R. Ashworth, Hy. Astley Bell, A. Burns, A. Coningsby, J. Cypher, J. Evans, A. Keeling, J. Lupton, D. McLeod and H. Arthur (Secretary). Mr. B. Collins was invited to sit with the Committee.

FIRST CLASS CERTIFICATE.

Odontoglossum plumptonense var. Lilacinum.—A magnificent, round flower, over three inches across, of solid lilac colour, with white tips to the segments; large, flat lip with white base and yellow crest. From Mr. JOHN EVANS.

AWARDS OF MERIT.

Odontioda Marigold var. Radiata; O. Thyone, O. Theresa var. Lilacina: Odontoglossum West Point Monarch var. coeruleum, O. Purple Queen; Cypripedium Conference var. Golden Glory; and Dendrobium Magda var. magnifica. From J. B. ADAMSON, Esq.

Dendrobium Timsbury Gem var. Redstart; Cypripedium Helsa var. Ingrid (Helen II × Satyr); Brasso-Laelio-Cattleya Philomela (L.-C. G. S. Ball × B.-C. Apollo); and Cypripedium The God Pan var. Daphnis.—From Mrs. BRUCE and Miss WRIGLEY.

Miltonia Venus var. Princess Maud; Brasso-Cattleya Rivalto; B.-C. Empress of Russia var. Delicata; and Odontioda Victory.—From G. V. LLEWELYN, Esq.

Odontioda aureum (Odm. Lambeauianum × Odta. Coronation); and Odontoglossum crispum, White Perfection.—From Col. Sir J. RUTHERFORD, Bart.

Brasso-Cattleya Bianca, The Warren var., and Odontoglossum Red Admiral, Vestey's var.—From the Hon. G. E. VESTEY.

Dendrobium Merlin var. Brilliant.—From Capt. W. HORRIDGE.

Odontoglossum James Wood Draper (parentage unknown).—From JAMES WOOD, Esq.

AWARDS OF APPRECIATION. FIRST CLASS.

Dendrobium Euxine (nobile virginale × crepidatum), D. Phyllida (Ainsworthii × Snowball), and D. Bembo (Euryalus × melanodiscus).—From Capt. W. HORRIDGE.

Cypripedium Llewelynii (Mulath × Druryi). From G. V. LLEWELYN, Esq.

CULTURAL CERTIFICATES.

To Mr. J. HOWES, for Angraecum Sanderianum and Dendrobium nobile album; and to Mr. A. BURNS for Lycaste Hagha.

GROUPS.

J. B. ADAMSON, Esq., Blackpool (gr. Mr. J. Howes), staged a group to which a Gold Medal was awarded; Dendrobiums included D. nobile, album, D. Cooksonii, D. Harefield Hall, D. Thwaitesiae and D. melanodiscus; and Odontiodas were represented by O. Thyone, O. Therese var. Lilacina, O. Marigold var. Radiata, O. Madeline Evansiae and O. Glenora.

Mrs. BRUCE and Miss WRIGLEY (gr. Mr. A. Burns), were awarded a Large Silver Medal for a group of Dendrobiums of the nobile section, with D. Thwaitesiae, Veitch's var., D. Rolfae, D. Apollo album; D. chessingtonense aurosum, D. plumptonense var. Alastair, and D. Wardianum; Lycastes, Coelogyne Sanderiana, and Cypripediums in variety were also shown.

The Hon. G. E. VESTEY, Southport (gr. Mr. B. Collins), was also awarded a Large Silver Medal for a group in which were Odontoglossum Red Admiral, Vestey's var. O. Marcus, O. Phena, O. Hyeana, O. Harold and O. Martius, in addition to Cattleya Cowanii alba, Brasso-Cattleya Bianca, Miltonia Hyeana and Cymbidiums in variety.

G. V. LLEWELYN, Esq., Southport, was awarded a Silver Medal for a group of Cypripediums, Miltonias, Brasso-Cattleya Empress of Russia var. Delicata and B.-C. Rivalto.

Capt. W. HORRIDGE, Bury (gr. Mr. A. Coningsby), staged Dendrobium Euxine, D. Phyllida, D. Bembo and D. Merlin var. Brilliant. Col. Sir J. RUTHERFORD, Bart., Blackburn (gr. Mr. J. Lupton), showed Odontoglossum crispum var. White Perfection and O. Paulin.

JAMES WOOD, Esq., Bathgate (gr. Mr. J. Wilkes), sent Odontoglossums.

Messrs. J. CYPHER AND SONS staged a group to which a Silver Medal was awarded. This included Cypripedium Pyramus, C. Maudiae and C. Miss Louisa Fowler; Renanthera Imschootiana, Cirrhopetalum Collettii, Lycaste Balliae, Masdevallia Houtteana, Sophronitis grandiflora, Miltonia Bleueana, Burlingtonia fragrans and Cymbidiums. Messrs. KEELING AND SONS, Bradford, showed Cypripediums and Odontiodas, and Mr. JOHN EVANS and Mr. D. MCLEOD showed Odontoglossums.

READING AND DISTRICT GARDENERS'.

The fortnightly meeting, held in the Abbey Hall, on April 11, was well attended and presided over by Mr. J. R. Lloyd.

The final meeting of the spring session is known as "Hospital Night," and on this occasion there was a magnificent display of cut flowers and flowering plants staged for the purpose of being sent to the Royal Berkshire Hospital afterwards. The display included Daffodils in numerous varieties, Arum Lilies, Polyanthuses, Cinerarias, Tulips, Anemones and flowering shrubs, contributed by Messrs. APPLETON, BEAUMONT, BROOMFIELD, BROWN, CLARK, J. COX, DOW, FULKER, GOWER, GREEN, F. HAINES, HOWLETT, JANES, JENNINGS, KENDALL, KITT, LANGFORD, MOULTON, PACKER, RABBITTS, REEVES, SHORT, R. G. TAYLOR, TOWNSEND, F. TURNER, WADE, WAITE, WEBB, H. WYNN and J. WYNN. A collection taken in aid of the Hospital will enable the Association to send a donation of three guineas.

In the competition for Daffodils there was a splendid entry, and lovely blooms were shown by each exhibitor. The awards were as follow:

Three vases, three distinct varieties, five entries; first, Mr. H. BROOMFIELD, The Gardens, Clyffe House, Mapledurham; second, Mr. F. TOWNSEND, The Gardens, Hillside, Reading; third, Mr. A. W. GOWER, The Gardens, Calcot Grange.

One vase, mixed, eighteen blooms, ten entries:—First, Mr. C. J. HOWLETT, The Yews, Earley; second, Mr. H. WADE, The Gardens, Mortimer House; third, Mr. F. HAINES, The Gardens, Calcot Grange.

There was also a competition for three plants of Polyanthuses, and the first prize was awarded to Mr. A. H. DOW, The Gardens, Calcot Park; second, to Mr. T. F. PACKER, Collis Road, Reading; and third, to Mr. T. C. WAITE, Verona, Basingstoke Road, Reading.

Mr. C. J. HOWLETT exhibited four excellent plants of Primula Crispii which were full of flower.

The evening was set apart for "Ten Minutes" papers, and although six members had volunteered papers, there was only time for three to be read: Mr. H. Broomfield, "Carnations in Pots,"; Mr. C. S. Clacy, The Gardens, Sidmouth Grange, Reading, "The benefit of Botany to the Practical Gardener"; and Mr. A. H. FAULKER, The Gardens, Elmhurst, Reading, "Polyanthuses."

ROYAL HORTICULTURAL.

April 26 and 27.—A full hall greeted those who attended the meeting of the Royal Horticultural Society this week, and as the exhibits were of greatly varied character, there was something to interest everyone. Orchids were fewer in number than usual, but some very fine new hybrids were shown and received awards. Daffodils were good for the date, especially the series of Poeticus varieties from Marsh Farm, Twickenham. Polyanthuses, Carnations, Roses, Freesias and alpine plants were capital features, while the big central rock garden exhibited by the Hon. Vicary Gibbs attracted a great deal of attention and won admiration from all.

Novelties were fairly numerous and included what were probably the first English-raised greenhouse Hydrangeas.

Orchid Committee.

Present : Sir Jeremiah Colman, Bt. (in the Chair), **Mr.** Gurney Wilson, (Hon. Secretary), Mr. Fred J. Hanbury, Mr. Clive Cookson, Mr. R. Brooman White, Mr. Stuart Low, Mr. Wilson Potter, Mr. R. G. Thwaites, Mr. J. Cowan, Mr. A. McBean, Mr. Charles A. Curtis, Mr. J. E. Shill, Mr. H. G. Alexander, Mr. Fred K. Sander, Mr. S. Flory and Mr. A. Dye.

First Class Certificates.

Odontioda Titian (parentage unknown).—A gloriously coloured hybrid with flowers of large size and perfect, rounded form. The colour is ruby-red, almost blood-red, with a few fleckings of white, and some basal white marks on the petals. The lip is rich red-brown and the disk golden yellow. Shown by J. J. Bolton, Esq. (gr. Mr. Lyne), Claygate Lodge, Claygate.

Odontioda Venus var. Aphrodite (Oda. Coronation × Odm. Aglaon.)—A handsome hybrid of white ground colour, heavily and curiously marked with deep chocolate-red, an irregular band of this colour being continuous just within the margin, on the sepals and petals. The edges are rosy-mauve, as is the apex of the red, gold-disked lip. Shown by J. J. Bolton, Esq.

Awards of Merit.

Odontoglossum Purple Empress (parentage unknown).—The flowers are of large size, rosy-purple with white margins and a few white marks. The white-margined lip and red shading just below the golden disk are additional attractions. Shown by R. Gerrish, Esq., Milford Manor, Godalming.

Odontoglossum Iphis, Brockenhurst var.—This very handsome hybrid has yellow ground colour and heavy bars and markings of light brown. The lip has a yellow base and apex and a deeper yellow disk. Shown by F. J. Hanbury, Esq. (gr. Mr. Farnes), Brockhurst, East Grinstead.

Brasso-Cattleya Ursula (L-C. Sargon × Brassavola Digbyana).—A giant flower measuring nine inches across without spreading out the broad, mauve-purple petals, while from the top of the dorsal sepal to the apex of the fringed lip it measures eight inches. The sepals are rosy-mauve and the lip is purplish-mauve with yellow base and tube. Shown by Messrs. H. Alexander, Ltd.

Certificate of Appreciation.

Burrageara Windsor (Oncidioda Cooksoniae × Odontioda Firminii).—A distinct novelty that is the first of a new hybrid family which, like Potinara, combines four distinct genera. In this case, the combination is of Oncidium Cochlioda, Odontoglossum and Miltonia. The plant shown had a slender spike, about five feet long, with its flowers set somewhat widely apart. The blooms are not unlike those of a medium-sized Odontoglossum, and are marked and flushed with rose on a white ground. The habit of the plant suggests Oncidium macranthum and the shape of the flowers a modified Odontoglossum, while the lip is reminiscent of Miltonia descent, and the rose shading has, no doubt, originated from the Cochlioda ancestor. A very interesting Orchid and, we believe, the first to flower of a series obtained from the same cross. Shown by Messrs. Black and Flory.

Groups.

Messrs. Cowan's exhibit contained well-flowered examples of Brasso-Cattleya Schilliana, Brasso-Laelio-Cattleya Jupiter, Laelio-Cattleya Hassallii alba, Miltonia Bleuana, the curiously coloured and graceful Vuylstekeara Adonis, Odontioda Vuylstekeae, Dendrobium atro-violaceum, Trichopilia Backhouseana with eleven flowers, several Cymbidiums and the lovely Odontoglossum citrosmum.

Miltonia William Pitt var. Rosina, with deep reddish and rose-coloured flowers, was conspicuous in Messrs. Charlesworth and Co.'s small group, associated with Dendrobium infundibulum, Dendrobium thyrsiflorum, Vanda Herziana (tricolor superba × coerulea), and several handsome Odontoglossums. Messrs. Sutton Bros. showed Odontoglossums, Cymbidiums, Cypripediums and Odontiodas.

Burrageara Windsor, shown by Messrs. Black and Flory, was interesting to all Orchid growers, as its parentage is Oncidioda Cooksoniae × Odontonia Firminii, so that it combines four genera. The spike was about five feet long and carried nineteen flowers and buds ; the open flowers have a white ground, and flushes of rose, as in many forms of Odontoglossum crispum ; indeed, a good general description would be rose-tinted O. crispum flowers on a spike and plant of Oncidium macranthum.

R. Brooman White, Esq., Arddarrock, showed a number of seedlings of his choice, white Odontoglossum crispum ; all were fine in size, form and substance. Mr. Harry Dixon showed several Odontiodas, notably O. Beechense, O. Bradshawiae, O. Joan and O. Vuylstekeae.

Four lovely plants were shown by J. J. Bolton, Esq. (gr. Mr. Lyne), Claygate Lodge, Claygate ; these were Odontioda Titian (parentage unknown), of exquisite form and ruby-red colour ; O. Orestes var. Butterfly, carrying sixty-two handsome flowers ; O. Gladys var. Perfection, and O. Venus var. Aphrodite.

Mr. J. Evans amd Mr. R. Gerrish also showed a few plants, and Messrs. H. G. Alexander, Ltd., showed grand specimens of Brasso-Laelio-Cattleya Ursula, B.-C. speciosa, Odontioda Lambeauiana, Westonbirt var., and O. Radiance.

Floral Committee.

Present : (Section A.)—Mr. H. B. May (in the Chair), Mr. J. F. McLeod, Mrs. Ethel M. Wightman, Mr. H. J. Jones, Mr. D. Allan, Mr. Hugh Dickson, Mr. J. M. Bridgeford, Mr. D. Ingamells, Mr. M. C. Allwood, Mr. E. R. Janes, Mr. R. Findlay, Mr. A. E. Vasey, Mr. W. H. Page, Mr. Jas. B. Riding, Mr. Geo. Churcher, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mr. Courtney Page, Mr. G. W. Leak, Mr. Charles E. Pearson and Mr. Cartwright (Secretary).

(Section B.)—Mr. Charles T. Musgrave (in the Chair), Sir William Lawrence, Bt., Mr. G. Reuthe, Mr. Mark Fenwick, Mr. Reginald Cory, Mr. F. G. Preston, Mr. Eric M. Marsden-Jones, Mr. L. R. Russell, Mr. R. W. Wallace, Mr. G. Yeld, Mr. H. C. Baker, Mr. T. Hay, Mr. Clarence Elliott, Mr. W. G. Baker, Mr. W. B. Cranfield, Mr. E. A. Bowles and Mr. N. R. Gould (Secretary).

Awards of Merit.

Anemone High Hall Strain.—A large vase of very handsome flowers was shown. In general characteristics they approach Anemone fulgens with a pleasing range of colouring ; but bright scarlet, rosy-scarlet and clear salmon predominated. Most of the flowers have a distinct white zone. Shown by Messrs. Bernard, Ltd.

Cydonia Wisley Salmon.—This is a profusely-flowered variety of the Japanese Quince which is more commonly known as Pyrus japonica. The salmon colour only appears after the flowers have become fully mature ; earlier they are of a bright red colour. It is a desirable shrub. Shown by the Director, R.H.S. Gardens, Wisley.

Daphne retusa.—This desirable species has a certain resemblance to D. odora, but differs in being of more sturdy habit and in having smaller, thicker leaves. Daphne retusa was discovered by A. E. Pratt in Western China, at an elevation of 13,500 feet, in 1889. It is a sturdy little, much-branched shrub, bearing large, robust clusters of white flowers heavily stained with purple on the outsides and possessing a rich Lilac-like perfume. It is figured in *Bot. Mag.*, 8,430. Shown by Sir William Lawrence, Bt. (gr. Mr. Everett).

Eritrichium nanum.—A small plant bearing three little racemes of this dwarf alpine was shown. The flowers are of a rich azure-blue and have the general appearance of very dwarf Forget-me-Nots. It was introduced to our gardens from the Alps in 1869, and is figured in *Bot. Mag.*, 5,832. Shown by Mr. A. J. Sewell, Ronnely, Weybridge.

Hydrangea H. B. May.—This and the two following are of special interest in that they appeared in the first batch of seedling Hydrangeas raised in this country. The variety H. B. May has a large, shapely truss, the "pips" are also large and of medium pink colour lightly shaded with mauve at the edges. All three were shown by Mr. H. J. Jones.

Hydrangea J. F. McLeod.—This variety has a compact head of medium-sized, bright pink flowers, and is of great decorative value.

Hydrangea Lord Lambourne.—The trusses are large and shapely, and the individual flowers, which are above the average size, are of a pleasing soft pink colour.

Lysichitum camtschatcense. — Several good spathes of this bog plant, which may well be called the "Golden Arum of North America," were shown. The large, hooded, shining yellow spathes are thrown up slightly in advance of the foliage and are of striking appearance. Even after the flowers have faded, the large, handsome leaves have considerable attraction. A good illustration of the plant appeared in *Gard. Chron.*, April 6, 1916. Shown by Messrs. M. Prichard and Sons.

Olearia ramulosa.—A graceful, free-flowering, little shrub, sparsely furnished with very small, leathery, spathulate leaves and plentiful clusters of relatively large, white flowers. Shown by Sir William Lawrence, Bt.

Primula ninguida.—This uncommon species belongs to the Nivalis series. It is of sturdy, compact habit. The entire, ovate, green leaves are occasionally powdered while the flower buds are heavily covered with meal. The thrum eyed flowers are about an inch across, of bright purple colour, darker towards the centre. There is a golden rim to the tube which is of bright yellow colour. Shown by Lt.-Col. Messel.

Rhododendron Linley.—A hybrid Rhododendron, bearing goodly trusses of large, widely-expanded flowers of soft pink shading, which have a small cluster of carmine spots at the base and large purplish bracts.

Rhododendron Oliver.—Of similar type to the previous, though the flowers do not expand quite so widely. They are coloured a deep shining pink on the outsides, and are paler within. Both were shown by Lt.-Col. Messel (gr. Mr. J. Coomber), Nymans, Haywards Heath.

Syringa Lamartine.—This is a hybrid "Lilac," and bears large trusses of single, lilac-coloured flowers which have fair fragrance. Shown by the Director, Royal Gardens, Kew.

For Trial at Wisley.

Carnations Mrs. A. J. Cobb and *W. H. Page.*—These two perpetual-flowering Carnations, which received Awards of Merit on April 9, last, were selected for trial at Wisley. The former variety was illustrated in *The Gardeners' Chronicle* of April 9.

Iris pumila variety.—A good, dwarf Iris which has dark, metallic purple falls and lilac coloured hairs on the standards. Shown by Mrs. W. R. Dykes, Bobbingcourt, Woking.

Groups.

Immediately inside the hall, there was a magnificent exhibit from the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree. This was in the form of a boldly arranged rock garden leading up to a shrubbery well filled with profusely flowering specimens, and the whole was enclosed with a neat bordering of grass. The shape of the exhibit was, of necessity, rectangular, but the limitations of space and position were overcome in an admirable manner, and a most successful garden was the result. The principal shrubs were Laburnums, Japanese Maples, Berberises, Viburnum Davidii, Japanese Azaleas in many good varieties and shapely Conifers of the type most valued for the rock garden. Towards the entrance there was a pleasant little rocky pool, while on the lower levels there were many alpiries and dwarf border plants in flower.

Another very interesting and valuable collection of alpines in pots and pans was shown by C. G. Kirch, Esq., (gr. Mr. J. Wall), Edenhall, Beckenham. Amongst other noteworthy plants he included Rhododendron calostrotum, Daphne rupestris grandiflora, D. Cneorum, D. fioniana, Aethionema Warley hybrid, A. jucunda, Aquilegia flabellata nana, Androsace villosa, Tulipa Batalinii and Iris pumila purpurea. Mr. G. H. Dalrymple staged a good selection of Bartley hybrids of Primula pulverulenta and a few vases of his coloured Freesias.

A large basket of Polyanthus Greenways' Glory, which received an Award of Merit last year, was shown by Miss Christy, Boyton Cross, Chelmsford, with several good varieties of double-flowered Daisies and Gentiana acaulis. The Misses Hopkins and Mr. J. Robinson had small rock gardens planted with seasonable subjects. Messrs. Bakers, Ltd., used Primulas, Gentians, Kalmia latifolia and Japanese Azaleas to effect in their rock garden, while Messrs. Hodsons, Ltd., employed various Aubrietias, Muscari, Brooms, Berberises and Cydonias.

In a well-designed sandstone rock garden, Messrs. Wm. Cutbush and Son planted Irises, Primulas and dwarf Azaleas, with a background of deciduous flowering shrubs. Messrs. W. H. Rogers and Son planted Daphne Cneorum and various alpines. Mr. Gavin Jones had several interesting species of Sempervivum, Gentiana verna, Drabas and dwarf Conifers. Mr. H. Helmsley staged many alpines, Japanese Azaleas, Grevillea rosmarinifolia and G. sulphurea.

In their rock garden exhibit Messrs. Jeans and Trowbridge included Fritillaria, Gentiana acaulis, Antirrhinum Asarina and Japanese Azaleas. Messrs. Tuckers, Ltd., had a quantity of Campanula Stevens's nana, Gentiana verna angulosa, Fritillarias, Trillium grandiflorum and Cytisus Beanii, while Messrs. Maxwell and Beale had Gentians, double-flowered Daisies, Azaleas and Ericas.

An interesting exhibit was staged by the Central Garden Supplies Co., who included Kalmia latifolia, Conifers, Primulas, Brooms, Cydonias, Gentiana acaulis, and Shortia uniflora grandiflora. Messrs. B. Ladhams, Ltd., had a large batch of Cardamine lilacina plena, Forget-me-Nots and Polyanthuses. Messrs. M. Prichard and Sons had good plants of Iberis, Dodecatheon gigantea and other seasonable alpines.

On the staging, Messrs. L. R. Russell, Ltd., had a pleasing collection of Wistarias, Laburnums, Pyruses, Azaleas rosaeflora, A. Hinomayo, Ivies and other shrubs. Trusses of various Rhododendrons, Camellias, Magnolias and Azaleas were exhibited by Mr. G. Reuthe. Mr. F. G. Wood had Daphne Cneorum, Scilla alba, Primulas and other spring flowers.

An exceedingly interesting collection of Hydrangeas was set up by Mr. H. J. Jones. This was a selection of the first seedlings raised in this country and the plants were all of good, sturdy habit and bore compact, well-formed heads of flowers. There was a considerable variation in form and colouring and all were of pink shades. We understand from Mr. H. J. Jones that the seeds were sown under glass only fifteen months ago.

Captain Collingwood Ingram, The Grange, Bennengen, staged a very interesting collection of the later-flowering varieties of Japanese Cherries from his well-known collection, which includes considerably over one hundred distinct varieties of these handsome, spring-flowering trees. On the present occasion he showed twenty-one varieties which well illustrated the diversity of floral form and colouring.

There were collections of very good Polyanthus arranged by several exhibitors. In association with his admirable Hydrangeas, Mr. H. J. Jones had many good plants of a desirable strain. Messrs. Dobbie and Co. had a fine collection in large pots, while Messrs. Blackmore and Langdon arranged their desirable strain in bold colour masses. Messrs. John and A. Crook also staged plants of a very good strain. Mr. G. W. Miller also showed Polyanthuses.

Roses of good quality were shown by Messrs. B. R. Cant and Sons and Mr. J. R. Pemberton.

Adjoining their Carnations, Messrs. Stuart Low and Co. had a collection of excellent Mimosas, with large Hippeastrums, Boronia megastigma, Chorizema cordata and Gerbera hybrids. Messrs. John Peed and Son exhibited plants of a splendid strain of Streptocarpus. There were many very well-grown plants bearing large flowers of very beautiful colours. Messrs. Sutton and Sons showed a good collection of Cineraria hybrids in well-flowered plants of good colours, while in another part of the hall they had a collection of Dutch Irises in many named varieties. Messrs. Jarman and Co. staged an interesting collection of Zonal Pelargoniums, mostly in good single-flowered varieties.

Good collections of Carnations were shown by Messrs. Stuart Low and Co., Messrs. Engelmann, Ltd., and Messrs. Allwood Bros., while Mr. A. F. Dutton had several vases of his new variety Mrs. A. J. Cobb. Mr. Baldwin Pinney and Mr. J. J. Kettle showed Violets, and the latter included a few Polyanthuses in his exhibit.

Messrs. J. Carter and Co. had a pleasant group of well-flowered plants of Cineraria Bouquet Pink and Lilium longiflorum (Harrissii).

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the Chair), Mr. G. W. Leak, Mr. P. D. Williams, Mr. Peter R. Barr, Mr. W. B. Cranfield, Mr. F. H. Chapman Mr. Charles H. Curtis, Mr. F. Secrett, Mr. C. Tichmarsh, Mr. G. Churcher, Mr. J. Jones, Miss Willmott, Mr. Arkwright, Mr. W. Poupart, Sir Daniel Hall, and Mr. A. Simmonds (Secretary).

AWARDS OF MERIT.

Narcissus Venetia.—This chaste Triandrus hybrid is pure white throughout and of graceful poise. It had previously received an Award of Merit and is now the first variety under the new regulations to receive the Award of Merit "for cutting," as it has been on trial at Wisley. Shown by Mr. W. B. Cranfield, Enfield.

Narcissus Mayflower (III. a.).—A Barrii variety with an immense amount of Poeticus blood in it. The rounded, substantial flowers are milk-white with an orange-red cup. A grand flower for show purposes (for which it gained the award), and also for market; it was selected for trial at Wisley for cutting purposes. Raised by Mr. Engleheart. Shown by Mr. F. Secrett, Marsh Farm, Twickenham.

CERTIFICATE OF APPRECIATION.

Narcissus Engleheart's White Rose.—A lovely, finely proportioned, double, white variety; indeed, the finest double white Narcissus we have seen. The segments are broad and rounded, making up a daintily beautiful and shapely flower of great value; it is sweetly scented, as becomes a Poeticus variety. Raised by Mr. Engleheart. Shown by Mr. F. Secrett, Marsh Farm, Twickenham.

SELECTED FOR TRIAL AT WISLEY.

Narcissus Papyrus.—A fine Poeticus variety of splendid shape and substance (see Fig. 147, p. 301). Shown by Mr. F. Secrett.

Narcissus Nanette.—A semi-double Leedsii variety with wide outer segments and very irregular central ones. The exhibitor's name did not appear on the card.

Narcissus Snowsprite.—Another Leedsii variety, but more double and regular than the former, although, even so, it is only semi-double. This should become a very useful market flower. Shown by Messrs. Barr and Sons.

GROUPS.

Messrs. Barr and Sons had a large collection which contained many very desirable varieties. There were some seedlings of various divisions and of great merit. Amongst their named varieties we especially noted Alcida, Gallipoli, Cinderella and ovidus of the Giant Incomparabilis division; Snow King, Crusoe and Kestrel, lovely Poeticus varieties; Niobe and Phyllis Rochfort, two Barrii varieties, which have vividly coloured coronas; Amadis, a giant Trumpet Daffodil, and Mrs. R. O. Backhouse, which is still the best of the varieties which have pink colouring on the corona. At one end of the exhibit Messrs. Barr and Sons had a few well-flowered plants of Gentiana verna.

Amongst nearly one hundred vases of Narcissus Poeticus, staged by Mr. F. Secrett, it was not possible to find any two alike, for there was definite differences in the perianth or the corona in all. In addition to the extent of the exhibit, which was stated to be of flowers gathered at Twickenham from the open ground on the morning of the show, all the flowers were of very high quality. These splendid Poet's Narcissi were all under seedling numbers and, in addition, there were a vase each of Papyrus of the same type, and of Folly, a handsome Incomparabilis variety.

In an interesting collection, Mr. J. W. Barr included several very good seedlings and also had admirable vases of Triton and Phyllidea two giant Incomparabilis; Hecaste, a sulphur-coloured Trumpet; Hera, a lovely Leedsii: Lady Brilliant, a well-formed Poeticus; Pink Opal, a Leedsii with a long tube, rimmed with salmon, and Queen of Spain. Mr. J. W. Barr also had several vases of Darwin Tulips of well-known varieties.

In a smaller collection, Messrs. Stewart and Son had several vases of the fragrant Jonquilla Narcissus Admiration, a Tazetta variety, Gay Hussar, Barrii, and Agnes Harvey, a Leedsii variety.

Fruit and Vegetable Committee.

Present: Mr. E. A. Bunyard (in the Chair), Mr. G. Tinley, Mr. A. Bullock, Mr. T. Pateman, Mr. J. Wilson, Mr. W. Giles, Mr. A. Poupart, Mr. E. Beckett, Mr. E. Neal, Mr. W. H. Divers, Mr. H. V. Taylor, Mr. W. Lobjoit, Mr. E. Laxton and Mr. A. N. Rawes (Secretary).

The only exhibit before this Committee was one of perennial Broccoli, shown by Messrs. Dobbie and Co. This is a branching type of Broccoli, somewhat similar to the variety Bouquet, which was introduced some thirty years ago, and others of a similar type are Late Queen, Hen-and-Chickens and Nine Star Perennial. The plants continue to provide a succession of heads for some five or six years if they are mulched and the central inflorescence cut off to prevent flowering. It is a very valuable type of Broccoli for use late in the season as it comes in with the sprouting type of Broccoli. Mr. Beckett stated that he had grown the variety for five or six years, and strongly recommended it. He said it is very hardy, and the plants will crop for five or six years in succession. The curds on the plants exhibited were yellow, but it was stated that by tying up the leaves, heads of a whiter and better appearance may be secured for the table.

LINCOLNSHIRE DAFFODIL.

The chief floral event of the year locally, and the only exhibition of its kind in the county, the Lincolnshire Daffodil Show was held at Spilsby, in the north of the county, on April 13, when the Drill Hall was a blaze of flowers.

The exhibition was not held in 1926 owing to the unfavourable season, but on the present occasion entries were larger than ever, numbering one-hundred-and-fifty-two.

In the open class, the Silver Cup for a collection of up to forty vases, representative of the most important divisions, was won by the Spalding Bulb Company.

In the section open to amateurs, the Silver Vase presented by Messrs. Barr and Sons, was awarded to Mrs. Eric Wright, Spilsby, for twenty distinct Daffodils. Messrs. Cartwright and Goodwin's Vase, offered for eight varieties, was won by Mr. N. S. Robinson, Hundleby, near Spilsby.

Other leading prize-winners were:—Colonel C. A. Swann, C.M.G., Sausthorpe Hall, Mr. B.

Robinson, Mrs. Rolsing, Mr. H. Dunkley, Skegness, Mr. N. S. Robinson, Rev. H. G. Alington, Mrs. Frew, Candlesby Hall, Rev. Canon H. L. Harrison, Mrs. W. Rawnsley, O.B.E., Well Vale, Alford, Mrs. F. W. Capes, and Rev. G. H. Harries.

NORFOLK AND NORWICH HORTICULTURAL.

The Spring flower show of the Norfolk and Norwich Horticultural Society was held in St. Andrew's Hall, Norwich, on April 7, 8 and 9.

Although the season was somewhat early for many of the choicer Narcissi, there was a very fine display. Captain Sandys Winsch, Brundall, won the Challenge Cup and first prize in the class for twenty-four varieties of Daffodils and Narcissi with a fine exhibit. Other prominent exhibitors in this section were Captain J. H. Mander, Thorpe, who staged many beautiful seedlings of his own raising, and won the Gold Medal offered for the best bloom in the show with a superb large, deep yellow flower labelled "E. 3." The Hon. Mrs. Petre, Westwick, staged a fine collection of Trumpet Daffodils, many of them seedlings. Mr. C. H. Walter, Drayton, also had some very good blooms.

There was a fine display of flowering shrubs, choice specimens being contributed by J. A. Christie, Esq., M.P. (gr. Mr. S. High), Framingham Manor, and J. E. Moxey, Esq., Framingham Hall, with a fine display of the earlier Rhododendrons from the Hon. Mrs. Petre, Westwick. Other spring flowers were well represented.

Pot plants were an outstanding feature of the exhibition, especially Calceolarias, Schizanthuses and Cyclamens, staged by Mrs. H. J. Copeman, Westwood House, Norwich (gr. Mr. Mitchell).

Fruit was not a strong feature, but some very good Strawberries were shown by J. A. Christie, Esq., M.P.

The trade was represented by Messrs. Daniels Bros., Ltd., who had a variety of hardy spring flowers; Mr. G. W. Miller, Wisbech, who also showed many kinds of spring flowers; Messrs. Allwood Bros. and Messrs. C. Engelmann, Ltd., each of whom showed Carnations; Messrs. Bakers, Ltd., Wolverhampton, exhibited rock plants and shrubs; Messrs. R. Winder, Ltd., Lingwood, arranged a miniature rock garden; Messrs. R. H. Bath, Ltd., Wisbech, contributed fine Narcissi and Tulips growing in bowls; Messrs. A. J. and C. Allen, Norwich, showed Roses, including two new seedlings of merit; Messrs. A. Reeves and Co., Old Catton, also displayed Roses with other flowering shrubs; Mr. H. Prins, Wisbech, and The Welsh Bulb Fields, both of whom had displays of Daffodils, and Mr. Baldwin, Pinney, who showed Violets.

GENERAL BULB GROWERS OF HAARLEM (HOLLAND).

The Floral Committees of the General Bulb Growers' Society, Haarlem, have awarded the following Certificates to Tulips and Daffodils during the winter session, 1926-7.

Early Forcing Certificates.

Tulip Allard Pierson.—A carmine-red Darwin variety. Shown by Messrs. A. and P. Nijssen Bros., Santpoort.

Tulip Early Yellow.—An early, single, clear golden-yellow variety; its form resembles that of the single, late Tulip Elegans. Shown by Mr. J. C. van der Eyken.

Tulip Linnaeus.—A mauve-coloured early, single variety. Shown by Mr. Th. van der Vlugt.

Narcissus Christmas Glory.—A golden yellow Trumpet variety. Shown by Messrs. W. J. Eldering and Son, Ltd., and by Mr. C. A. van Paridon.

Forcing Certificates.

Tulip Alice.—A double white variety of globular form. Shown by Messrs. Th. and P. van der Nouland.

Tulip Aurora.—An early, double, orange-red variety. Shown by Mr. Th. F. Van Rijn.

Tulip Beryll.—An early double variety; the flowers are satin-pink with white. Shown by Messrs. G. Sluyter and Co.

Tulip Golden Chief.—An early, primrose-yellow variety, bordered with golden-yellow. Shown by Messrs. A. and P. Nijssen Bros.

Tulip Lady Moore.—An early, single, orange-red variety. Shown by Messrs. C. Blom and Son, and Messrs. P. Byvoet and Co.

Tulip Morning Glory.—An early, single, browny-orange variety with yellow base. Shown by Messrs. de Graaff Bros., and Messrs. S. A. van Konijnenburg and Co., Ltd.

Tulip Redbreast (Ibis light).—An early, single, variety, flamed carmine-red. Shown by Messrs. Warnaar and Co.

Tulip Thomas Edison.—An early, single orange-red variety; the petals are bordered with old-gold. Shown by Messrs. de Graaf Bros., and Messrs. S. A. van Konijnenburg and Co., Ltd.

Tulip Wildfire.—An early, single variety, coloured orange-red on a yellow base. Shown by Messrs. de Graaff Bros., and Messrs. S. A. van Konijnenburg and Co.

Narcissus Harbinger (*bicolor*).—The white perianth is formed like a star; the trumpet is well-shaped and coloured dark yellow. Shown by Messrs. R. A. van der Schoot, Ltd.

Narcissus Locarno.—A bicolor variety with white perianth and sulphur-yellow trumpet. Shown by Mr. K. Oudshoorn.

Narcissus Wilson.—The perianth is pure white, the trumpet lemon-yellow. Shown by Messrs. den Older Bros.

Narcissus Concordia (*Titan*).—A big, stout, Trumpet variety, with well-shaped, golden-yellow perianth, the trumpet wide-opened, and somewhat darker coloured than the perianth. Shown by Messrs. C. G. van Tubergen Jr.

Narcissus Star (Incomparabilis).— The perianth is white and the trumpet yellow. Shown by Messrs. R. A. van der Schoot, Ltd.

Narcissus White Emblem (Leedsii).—The small trumpet is pure white. Shown by Messrs. H. de Graaff and Son, Ltd.

Obituary.

George Mount, V.M.H.—The passing of Mr. George Mount (see p. 296), of Canterbury, creates another gap in the ranks of those veteran horticulturists who were famous even in Victorian times. Our friend—he often called at *The Gardeners' Chronicle* office when in town, to chat about old times—who died on April 22, had reached the advanced age of eighty-three years, and alas! had not enjoyed good health for the past year or more. The life story of Mr. George Mount is one of the romances of industry. He was not brought up to follow horticultural pursuits; but his love for flowers and plants led him to take up their cultivation as a business, and it was with Roses that he became famous as a grower and exhibitor. From Roses to fruit trees was an easy transition, and very soon he was as famous for fruits and fruit trees as for Roses. Hop cultivation also attracted him and he became an extensive grower. As his sons grew to manhood they assisted materially in the development of the business and launched out as market growers of Roses, Carnations and fruits. Mr. George Mount had a delightful personality, always genial, smiling and unassuming, and never failing to credit his sons with their full share of the great developments raised on the foundation he laid. His interest in the National Rose Society never waned, and he loved to talk of the trophies won and the fine flowers exhibited in bygone days. He took a keen interest in local affairs and was twice Mayor of Canterbury. The well-deserved honour of the Victoria Medal of Honour in Horticulture awarded him by the Royal Horticultural Society in 1925 gave him a vast amount of pleasure, especially as his modesty scarcely permitted him to believe he had done anything more than others to merit the honour. Throughout his long life he was diligent in business, took a paternal interest in his staff and was kindly and gentle to everyone.

ANSWERS TO CORRESPONDENTS.

Fungus and Moss on Lawn.—*E. M.* The bad weed on the lawn is a lichen, which is partly a fungus and partly a green Alga. The remedy for a fungus actually buried in the soil is to soak the ground thoroughly with Bordeaux mixture four times at intervals of eight days; but as the weed is on the surface in this case one or two applications may suffice. Bordeaux mixture may be made with 3 lbs. of copper sulphate, 2 lbs. of quick lime and 25 gallons of water. The copper sulphate should be dissolved in a wooden barrel capable of holding the full amount. The lime may be dissolved in any kind of vessel and filtered into the copper sulphate to remove the lumps and grit. There were several species of moss mixed with the lichen sent, showing that the soil is acid. A liberal dressing of newly-slaked lime would correct this, and we think it would also check the growth of the lichen, as well as cause the grass to grow more freely. A sprinkling of sulphate of ammonia, or a dusting of lawn sand late in May would also encourage the growth of the grass.

Lettuces Diseased. — *P. T.* The young Lettuce plants submitted to us are attacked by a fungus, Botrytis sp. Damp conditions at the soil surface encourage this disease and therefore you must endeavour to keep the surface dry by hoeing and lightly dusting it with lime. A two per cent. solution of calcium bisulphate will destroy the spores of this fungus, and it may pay you to treat badly diseased patches with this compound, which should be applied either by a spraying machine or through a rose can. In the process, the soil surface and the collar of the plants should be wetted. A light dressing of nitrate of soda or sulphate of ammonia will impart additional vigour to the plants, and may assist them to resist the disease.

Names of Plants.—*H. B.* 1, Jacobinia magnifica var. carnea; 2, Sprekelia (Amaryllis) formosissima; 3, Cypripedium bellatulum; 4, C. Spicerianum; 5, Trachelospermum (Rhyncospermum) jasminoides.

Pests in a Garden.—*Woolaston.* The creatures sent in a box of soil were not insects, but one of the more numerous and more destructive snake millipedes, namely, Blanjulus pulchellus. It is destructive to the seeds of Peas, Broad Beans, Scarlet Runners, etc. In wet weather in spring, germination is hindered and these pests have a longer time in which to destroy the seeds. Potato tubers and the roots of many other vegetables are attacked by the pest. The soil sent was very black showing that there is much decaying vegetable matter in it; millipedes are very frequent and abundant in such soils. A liberal dressing of newly slaked lime would improve the ground and help to kill or drive away the pest. A dressing of soot now and again is also recommended. The soil may be greatly renovated by trenching it two feet deep or more, putting the top spit in the bottom. The trenching could be commenced in October and continued after the several vegetable crops are cleared. A species of mite was also present in large numbers, but we think it only follows the millipedes to feed on decaying matter.

Violets Diseased.—*A. E. F.* The fructifications (pycnidia) of a fungus, probably Phyllosticta violae, were present on the plants received. All remains of diseased plants should be destroyed, and, owing to the danger of some diseased parts remaining in the frame, the soil should be replaced by fresh compost and the inside of the frame cleaned before any new stock is introduced. *J. B.*—The disease on the Violets is caused by a fungus, a species of Ramularia. Probably the best way to deal with this disease is to obtain new stock.

Communications Received.—H. H. Thanks for 2/6 for R.G.O.F. Box.—C. G. A.—A. B.—J. H. B.—A. McC.—J. E. G. W.—J. C.—E. A. B.—W. B.—G. H.—W. G. R.—G. B.—H. E. D.—E. S. S.—H. R.—H. A.—R. E. A.—G. R.—W. A. C.—T. H.—C. F. C.—H. B. W.—H. N. G.—A. G.

MARKETS.

COVENT GARDEN, Tuesday, April 26th, 1927.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—Eds.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d.	s. d.
Adiantum cuneatum per doz. ...	10 0	12 0
—elegans ...	10 0	15 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus ...	12 0	18 0
—Sprengeri ...	12 0	18 0
Aspidistra, green	36 0	60 0
Asplenium, doz.	12 0	18 0
—32's	24 0	30 0
—nidus ...	12 0	15 0
Boronia heterophylla, 48's, per doz.	36 0	48 0
Cacti, per tray —12's, 15's ...	5 0	7 0
Cinerarias, 48's, per doz. ...	12 0	15 0
Crotons, doz. ...	30 0	45 0
Cyrtomium ...	10 0	25 0
Erica Cavendishii, 48's, per doz.	36 0	42 0
—coccina minor, 48's, per doz.	24 0	27 0
—persoluta, 48's, per doz. ...	24 0	30 0
—Wilmoreana, 48's, per doz.	27 0	30 0
Genistas, 48's, per doz. ...	21 0	24 0
Heliotropes, 48's, per doz. ...	15 0	18 0

	s. d.	s. d.
Hydrangeas, pink, 48's, per doz.	24 0	36 0
—blue, 48's, per doz.	30 0	36 0
—white, 48's, per doz.	24 0	30 0
—larger sizes, each	4 0	5 0
Marguerites, 48's, per doz. ...	21 0	24 0
Mignonette, 48's, per doz. ...	18 0	21 0
Nephrolepis in variety ...	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	30 0	48 0
—60's	15 0	18 0
Pteris, in variety	10 0	15 0
—large, 60's	5 0	6 0
—small ...	4 0	5 0
—72's, per tray of 15's ...	2 6	3 0
Roses, Polyanthas, 48's, per doz.	18 0	24 0
—Rambler, large plants, each...	5 0	15 0
Spiraea, white, 48's, per doz.	21 0	24 0
—pink, 48's, per doz.	27 0	30 0
Stock, white, 48's, per doz. ...	12 0	15 0
— coloured, 48's, per doz. ...	10 0	12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun	8 0	9 0
cuneatum, per doz. bun. ...	6 0	8 0
Anemone fulgens, per doz. ...	3 0	4 0
—St. Brigid, per doz. bun. ...	2 6	4 0
Asparagus plumosus, per bun., long trails, 6's ...	2 0	2 6
med. sprays...	2 0	3 0
short „ ...	0 9	1 3
—Sprengeri, bun. long sprays	2 0	2 6
med. „ ...	1 6	2 0
short „ ...	0 6	0 9
Camellias, 12's, 18's, per box	2 0	2 6
Carnations per doz. blooms	2 0	3 0
Croton leaves, per doz. ...	1 9	2 6
Daffodils, per doz. bunch—		
—Emperor ...	4 0	5 0
—Grandee ...	3 6	4 0
Fern, French, per doz. bun.	10 0	12 0
Forget-me-not, per doz. bun.	4 0	8 0
French Flowers—		
—Myrtle, green, per doz. bun.	1 6	2 0
—Violets, Parma, per bun. ...	3 0	4 0
—Stock, double white, per doz. bun.... ...	4 0	6 0
Gardenias, per doz. blooms ...	4 0	6 0
Gladiolus, Blushing Bride per doz. bun. ...	18 0	24 0
—Peach Blossom, per doz. bun.	21 0	24 0
Gypsophila, white, per doz. bun.	4 0	5 0
Heather, white, per doz. bun.	6 0	9 0

	s. d.	s. d.
Hydrangea, white, per doz. bun.	24 0	36 0
— coloured, per doz. bun. ...	30 0	36 0
Iris, Spanish, per doz. bloom—		
— blue... ...	1 6	2 0
— yellow ...	2 0	2 6
— mauve ...	1 6	2 0
—white ...	2 0	2 6
Ixia, various, per doz. bun. ...	3 0	4 0
Lilac, white, per doz. stems ...	4 0	5 0
—mauve, per doz. sprays...	4 0	5 0
Lilium longiflorum, long, per doz. ...	2 6	3 6
—short, doz. blooms ...	2 6	3 0
Lily-of-the-Valley, per doz. bun.	30 0	36 0
Narcissus, per doz. bunch—		
— ornatus ...	2 0	3 0
—Elvira ...	4 0	5 0
—Horace ...	3 6	4 0
Orchids, per doz.		
—Cattleyas ...	24 0	36 0
—Cypripediums	6 0	8 0
Richardias (Arums), per doz. blooms .	3 0	4 0
Roses, per doz. blooms—		
—Columbia ...	3 0	4 0
—Richmond ...	2 6	4 0
—Madame Butterfly ...	2 6	4 0
—Golden Ophelia	3 0	4 0
—Mrs. Aaron Ward ...	2 6	3 0
—Madame Abel Chateney ...	2 6	3 6

Cut Flowers, etc.—continued.

	s. d.	s. d.
Roses, per doz. blooms—		
—Hoosier Beauty	2 6	4 0
—Liberty ...	3 0	4 0
—Molly Sharman Crawford ...	2 6	3 6
—Premier ...	3 0	4 0
Smilax, per doz. trails ...	7 0	8 0
Star of Bethlehem (Allium), per doz. bun.	3 0	4 0

	s. d.	s. d.
Statice sinuata, mauve, per doz. bun.	3 0	4 0
Stephanotis, per 72 pips ...	4 0	4 6
Sweet Peas, in variety ...	6 0	12 0
Tulips, per doz.		
—single white	6 0	8 0
— — yellow ...	9 0	12 0
— — scarlet ...	6 0	9 0
—Darwin, red,	12 0	18 0
— — pink ...	12 0	18 0
— — mauve ...	12 0	15 0

Remarks.—Supplies, in the main, have exceeded the moderate demand during the past week, and generally prices have been on the down grade. Daffodils from home-growers are now practically finished for the season, but daily consignments of these blooms are coming to hand from Scotland, including Emperor, Barrii and Sir Watkin. The quantities of Tulips again exceeded the present demand owing to the increasing supplies of out-door blooms; the largest numbers are coming from Guernsey and the West of England. Spanish Irises and coloured Gladioli are being received from Guernsey in good condition. More Gardenias and Sweet Peas are on offer, and Iceland Poppies are now available. Trade in other subjects show little change from that of last week, with a general fall in prices. Consignments of flowers from France are gradually lessening; white Stock is much firmer in price. Anemones and all Ranunculus are arriving in a very advanced condition and unsuitable for re-dispatch. Gypsophila, Ixias and yellow Marguerites are receiving most attention from buyers. A few baskets of Statice sinuata, blue, have been received in good condition.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus—		
—Cavaillon ...	0 10	0 11
—Lauris ...	1 0	2 9
— Worcester, extra special ...	4 0	5 0
—special ...	2 0	3 6
Beans, Forced—		
—Special ...	0 10	1 6
Beans, Madeira—		
—Finest ...	3 0	4 0
Beets, per cwt.	5 0	6 0
Belgian Chicory, per lb ...	0 5	0 6
Cabbage, per doz.	2 0	2 6
Carrots, per ½-bag ...	4 0	6 0
Cauliflowers—		
—English, per crate... ...	3 0	5 0
Cucumbers, doz.	3 0	5 0
—Flats, 3, 3½, 4 doz.	10 0	12 0
French Endive, per doz. ...	2 6	3 0
Leeks, per doz.	2 0	2 3
Lettuce, round, per doz. ...	1 0	2 6
—long	4 0	6 0
Mint, forced, per doz. ...	2 0	4 0
Mushrooms		
—cups... ...	1 9	2 6
—Broilers ...	1 0	1 6

	s. d.	s. d.
Onions—		
Valencia ...	11 0	12 0
—Egyptian ...	—	13 0
Parsnips, per cwt. ...	4 6	5 6
Potatos—		
King Edward—ton	£9/10	£10
—others, ton ...	£6	£7 10
Potatos, New—		
—Guernsey ...	0 6	0 7
—Canaries, case	8 0	14 0
—Scilly ...	0 5	0 6
—Azores ...	16 0	18 0
Radishes, per doz.	1 6	3 0
Rhubarb, natural	3 0	4 0
Savoys, per tally	8 0	12 0
Seakale, per punnet ...	1 0	1 6
—natural, per ½ sieve ...	8 0	10 0
Tomatos, English—		
—pink, per lb ...	1 9	2 0
—pink and white, per lb. ...	1 9	2 0
—white, per lb.	1 4	1 6
—blue, per lb....	1 4	1 6
—Canary Island	25 0	35 0
Turnips, per cwt.	4 0	5 0

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, Australian—		
—Worcester Pearmain	17 0	18 0
—Dunn's ...	17 0	18 0
—Cox's Orange Pippin ...	15 0	18 0
—Jonathan ...	—	15 0
—King David ...	—	14 0
—Ribston Pippin	—	14 0
—Cleo	15 0	17 0
—Others ...	13 0	14 0
Apples, New Zealand—		
—Cleo	—	18 0
—Cox's Orange Pippin ...	20 0	22 6
—Worcester Pearmain ...	15 0	16 0
—Dunn's ...	15 0	16 0
—Jonathan ...	16 0	17 0
—Others ...	13 0	15 0
Apples, Virginian Albemarle ...	35 0	40 0
—Nova Scotian—		
—Nonpareil ...	20-0	24 0
Bananas ...	16 0	24 0
Brazils, per cwt.	—	72 0
Figs, per doz....	12 0	18 0
Grape fruit—per case		
—Blue Goose...	32 6	40 0
—Jamaica ...	25 0	27 6

	s. d.	s. d.
Grapes, English Gros Colmar	7 0	10 0
Grapes, South African, per case		
—Gros Colmar	10 0	15 0
—Hannepoot, red and white	8 0	10 0
—Waltham Cross	8 0	12 0
—Rosaki ...	8 0	12 0
—Barbarossa ...	8 0	10 0
—Raison Blanc	8 0	10 0
—Lady Downes	10 0	12 0
Grapes, Australian, ½-bushel boxes — To arrive		
Lemons, Messina Boxes	10 0	18 0
—Naples, per case	20-0	26 0
Oranges, per case—		
— Jaffa, per case	20 0	22 0
—Californian Navel ...	—	30 0
—Denia ...	18 0	30 0
—Murcia ...	17 0	25 0

Fruit—continued.

	s. d.	s. d.
Pears, South African, per box—		
—Beurré Bosc...	8 0	10 0
—Winter Nelis ...	9 0	10 0
Pears, New Zealand, Vicars ...	11 0	12 0
—Beurré Diel	5 0	6 0

	s. d.	s. d.
Pines, case ...	18 0	33 0
Plums, per box—		
—Kelsey ...	7 0	10 0
Strawberries (forced)—		
—special, per lb.	12 0	15 0
—best, per lb. ...	5 0	8 0

Remarks.—Business conditions in Covent Garden have been very much more lively than for some time past, the general improvement in the weather contributing to both the production and consumption. The heavy shipments of fruits from the Cape have sold moderately well. The principal fruits now arriving from South Africa are Pears and Grapes with a few Plums and Pines. Australian growers are sending Apples, Pears and Grapes, all of which are popular and sell well. The first English Gros Colmar Grapes from the Worthing district are now available, and considering the competition with other choice fruits, they are selling very well indeed at comparatively high prices. Forced Strawberries are slightly cheaper but remain expensive. The first forced Figs for the season are now on the market. Oranges have been a shade better market, and the demand for Lemons has also slightly improved. Trade in forced vegetables has been influenced by the quantities of French Asparagus on the market. Peas and French Beans are both offered at lower prices, and the earlier cuttings of Worcester Asparagus have felt severely the competition of cheap Asparagus from France. Much better supplies of English Tomatos are available, but their prices keep up very well indeed. The value of Cucumbers is, however, easier, but at the time of writing, there seems prospects of better prices being realised. Mushrooms are a more stable market as compared with last week, and while supplies are heavy the demand seems good enough to justify present prices holding. Trade in salads is not particularly good; a few first-grade Lettuces are wanted, but not much else is in great demand. Green vegetables and Cauliflowers are a disappointing market to the producers, cheap Asparagus being largely responsible for the poor demand. With fairly plentiful supplies of new Potatos from Spain, the Canary Islands, Azores, Guernsey and the Scilly Isles, the trade in old Potatos is moderate, and best sorts only are enquired for.

GLASGOW.

The incidence of the spring holiday and the wet weather had a depressing effect on prices of cut flowers during the past week, while excessive supplies contributed to the weakness. Lilium longiflorum (Harrissii) and Richardias were particularly cheap at 2/- to 3/- per dozen, and both Carnations and Roses were abundant at 2/- to 3/6 per dozen. Prices of Daffodils continued at the previous low levels, Emperor and Sir Watkin being worth 1/6 to 2/6 per dozen bunches; ornatus, 1/- to 1/6; Glory of Lisse, 2/- to 2/6; and King Alfred, 3/- to 6/-. Outdoor Tulips ranged 2/- to 4/- per dozen bunches for 6's, while indoor-grown blooms of William Copland made 8d. to 1/- for 6's; Bartigon, White Hawk and William Saunders, 10d. to 1/-. Iris kept steady at 2/- to 3/- for 12's; Lilac realised 9d. to 1/3 per bunch; Lily-of-the-Valley, 2/6 to 3/-; Anemones, 1/- to 2/- per dozen; and Wallflowers, 9d. to 1/6. Marguerites, Spiraeas and Dutch Azaleas, realised from 1/- to 1/6 per pot. Bedding plants, of which there was a glut, were practically unsaleable.

The fruit market was inactive and featureless. Apples: Albermarle Pippin sold for 30/- to 40/- per barrel; Newtown Pippin, for 15/- to 17/6 per case; Winesap, extra fancy, 12/- to 13/6; and fancy, for 10/- to 12/-. Oranges: Porto Rico, realised 18/- to 20/- per case; Jaffa, 144's, 19/6; 240's, 21/-; Valencia, 300's, 18/6 to 23/-; 240's, 22/- to 25/-; 360's, 12/- to 15/-. Porto Rico Grape Fruit fetched 20/- to 25/-; Blue Goose brand, 32/-. The value of South African fruit was as follows: Doyenne du Comice Pears, 12/-; red and white Hannepoot Grapes, 7/- to 8/-.

In the vegetable section prices of Tomatos advanced to 36/- and 40/- per bundle for Teneriffe produce, and 2/6 to 2/9 per lb. for Guernsey. Cucumbers realised 4d. and 5d. each; Cauliflowers made 2/6 per dozen; Lettuces, 1/6; Madeira Beans, 2/6 per lb., and Carrots, 9d. per bunch.

CATALOGUES RECEIVED.

Clibrans, Ltd., Altrincham.—Grasses for sports grounds.

Oliver and Hunter, Moniaive, Dumfriesshire.—Alpine and herbaceous plants.

Foreign.

H. den Ouden and Son, Boskoop, Holland.—Trees and shrubs, plants, etc.

Glen Road Iris Gardens, Wellesley Farms, Massachusetts.—Irises.

J. Boer and Son, The Nurseries, Boskoop, Holland.—General nursery stock (Wholesale).

GARDENING APPOINTMENT.

Mr. J. Osmond, previously gardener for eleven-and-a-half years at Ebrington Hall, Campden, Gloucester, and for the past two years gardener to R. L. Sands, Esq., at Morningside, Harbury, Leamington Spa, as gardener to the same gentleman at The Gorse, Priory Road, Bowdon, Altrincham, Cheshire. (Thanks for 2/- for R.G.O.F. Box.—Eds.)

THE
Gardeners' Chronicle
No. 2106.—*SATURDAY, MAY* 7, 1927.

CONTENTS.

Alpine Garden—
  Linnaea borealis ... 318
Aphyllanthes monspeliensis 323
Association of Economic Biologists ... 314
Bolting, the problem of 320
Books, notices of—
  A Treatise of Viticulture 324
Broccoli, branching ... 325
Cuthbertson, Mr. David C. 314
Douglas Fir, defoliation of the 323
Edinburgh, notes from 322
Flower garden—
  Lupinus nootkatensis 318
  Phytolacca decandra 318
Flowers for Mothers' Day 315
Frankfurt Palm Garden 314
Frosts, damage by April 313
"Gardeners' Chronicle" seventy - five years ago 315
Garden notes from south-west Scotland 322
Gardens and Queen Alexandra's Memorial 314
Holland County Potato Show 315
Lilium longiflorum, var. sinensis ... 314
Lyons' Horticultural Exhibition and Fair 315
Nice, the natural rock gardens of 319
Obituary—
  Roberts, David ... 330
Orchid notes and gleanings—
  Angraecum ... 318
  Odontoglossum Sylvia M. Aggs ... 318
Orchids in Glasgow public parks ... 315
Paeonies, silver cup for 314
Pea, Lord Anson's ... 320
Rhododendron Association, a 313
Societies—
  Horticultural Club... 329
  Midland Daffodil ... 326
  Rhododendron ... 328
Trees and shrubs—
  Cydonia cathayensis 318
  Ercilla volubilis ... 318
  Erica arborea ... 318
Vegetable garden—
  Kales 325
Vegetable, salad and fruit, a new... ... 325
Viburnum Carlesii, aphis on 325
Vita glass, experiments with 314
Week's work, the ... 316
Wisley, notes from ... 323

ILLUSTRATIONS.

Burrageara Windsor 319
Cuthbertson, Mr. David C., portrait of... 314
Hydrangea H. B. May 317
Narcissus Hopeful 326
Odontioda Titian... 321
Orchids at Tollcross Park, Glasgow 315
Pea, Lord Anson's 320

SUPPLEMENTARY PLATE.
Cydonia cathayensis.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 52°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 4 10 a.m. Bar. 29.9. Temp. 65°. Weather, Sunny.

Damage by April Frosts.

THE severe frosts which occurred in many parts of the country during the closing days of April have, we fear, severely reduced the prospects of a bountiful harvest of fruit. The opened buds of Apple blossom were frozen through to such an extent that the stigma within was blackened, while embryo Plums, and in some cases Gooseberries, fell to the ground after experiencing several nights of frost ranging from 3° at Bodnant to 19° at Edinburgh, and from 9° to 13° around London. In the county of Kent frosts were very severe, and we learn through Mr. E. A. Bunyard and Mr. F. W. Ladds that the splendid prospects of a bountiful fruit harvest have been reduced to a minimum. From south Hampshire, from Reading and from the Swanwick Strawberry district come similar tales of woe, while in the famed Vale of Evesham the cold weather has done irreparable harm to crops. It is too early yet to estimate the damage done and its effect upon the fruit industry as a whole, but the pessimistic strain in which so many correspondents have written is particularly ominous. We learn of acres of newly planted early-flowering Chrysanthemums being killed and of thousands of Marguerites utterly spoiled for market purposes by the severity of the weather. The night frosts of April 27, 28 and 29 laid a heavy hand on many of the Rhododendron species at Kew, both in the vicinity of King William's Temple and in the Museum garden, where Rhododendrons are successfully used as a ground cover for Lilies. The damage seems to be confined to the species which have been throwing out new growth of late, and although April has been consistently cold and not conducive to precocious growth, none of these seems to have escaped. On the other hand, species like R. neriiflorum, R. auriculatum and R. discolor, among others, which do not make a move yet, have not been harmed. Had April been a warm month, the damage would doubtless have been even more severe; as it is, the condition of the plants is clear evidence of the risks planters run. The list of casualties is too long for individual mention, but includes well-known species like R. Souliei, R. Williamsianum, R. rubiginosum, R. oreotrephes, R. strigillosum and R. irroratum, as well as several such as R. Watsonii, of which the constitutional hardiness is doubtful, apart from any question of vernal growth. The damage at Kew is not, unfortunately, confined to Rhododendrons.

Mr. E. Beckett, V.M.H., writes that: "the frosts registered at Aldenham from April 27 to May 2, were 15°, 13°, 4°, 13°, 17° and 2°, respectively, and the pitiful effect of the cold nights is especially noticeable on shrubs. Young growths of Roses are wilted beyond recovery, as are those of Hydrangeas, Diervillas, Deutzias and Viburnums. Cercidiphyllum japonicum looks as though a bonfire had been lit beneath it; Japanese and Chinese Maples are in a similar plight, and a bed of Azaleas that is a particular joy each season is now hopeless, with the flower buds killed completely, a fate that has also overtaken large specimen Magnolias. So runs the tale of woe, which would almost fill volumes; but the sum total of damage will not be known for some time to come. Even Gunneras that had been covered in the usual way were damaged, despite the protection afforded them. A very serious aspect of this severely cold spell is its effect on the fruit crops; there was a magnificent show of blossom, but the frosts have quite spoiled the prospects, for on examining flowers and even small, unopened buds, we found the stigmas dead and black, so that only in the very sheltered portions of Apple and Plum trees are we likely to find fruits eventually maturing. Alas! all this is apart from the severe check the trees have suffered. Never, in the course of my experience, have I known such damage, for even the young Strawberries leaves are shrivelled up as if by fire. There arises but one small consoling thought, and it is that the ground itself was very much on the dry side. Had the soil been moist when these frosts overtook us, where to-day there are scores of casualties, there would probably have been thousands of infinitely worse cases, and while we bemoan the present serious damage, it is as well to remember there might have been absolute disaster."

Chelsea Show.—This year, Chelsea show will be held on Wednesday, Thursday and Friday, May 25, 26 and 27. On the first day, Wednesday, May 25, there will be a private view for Fellows and their friends from 9 a.m. to 12 noon. Only Fellows' and Associates' tickets will admit to the private view, but transferable as well as non-transferable tickets may be used. There will be no admission by payment on Wednesday, May 25 until 12 noon, when the show will be opened to the public. Those who propose to submit new or rare plants to the Committees for certificate should remember that the Committees will not meet on the first day of the show, but at 6 p.m. on the previous evening. All plants, etc., for certificate must be entered with the Secretaries of the respective Committees by 5.30 p.m. on Tuesday, May 24, and they will be in attendance to receive entries throughout the afternoon. Vans will not be admitted to the show grounds on Tuesday, May 24, after 3 p.m.

Royal Gardeners' Orphan Fund.—We would remind our readers that the Annual Festival Dinner of the above deserving gardening charity is to be held at the Hotel Victoria, Northumberland Avenue, London, on Friday, May 20, next, when Sir Henry Whitehead, of Stagenhoe Park, Welwyn, will preside. Donations to the Chairman's list, no matter how small, will be welcomed, and should be addressed to the Secretary of the Fund at 19, Bedford Chambers, Covent Garden, London, W.C. 2.

Hungarian Import Tax on Azaleas.—A tax of 200 Goldkronen per 100 kilos is charged on Azaleas, Rhododendrons, etc. (even without buds or flowers) imported into Hungary; this works out, roughly, at about one to four shillings per plant, according to size. In these circumstances exporters find it almost impossible to send their plants to Hungary.

Tulip Show at Wakefield.—The ninety-first annual exhibition of the Wakefield and North of England Tulip Society (established in 1836) will be held at the Brunswick Hotel, Wakefield, on Saturday, May 21, and the three following days, and will be open to ticket holders at 1 p.m.

A Rhododendron Association.—On Tuesday last, a meeting was held in the R.H.S. Lecture Room at 4 p.m., for the purpose of forming a new Society in the interests of the Rhododendron. The meeting was well attended; Mr. Lionel de Rothschild occupied the chair, and among those present we noticed Mr. W. J. Bean, Sir Frederick Moore, Mr. P. C. M. Veitch, Mr. R. Cory, Mr. A. Grove, Mr. W. E. Wallace, Mr. G. Waterer, Mr. G. Loder, Mr. P. D. Williams Mr. J. C. Williams, Mr. Eley, the Hon. H. D. McLaren, Sir Herbert Maxwell, Mr. A. D. Cotton, Dr. A. Hill and Lord Headfort. Mr. Rothschild stated that there already existed a Rhododendron Society composed of some twenty-five persons interested in Rhododendrons, but that Society was more in the nature of a club, it was now considered desirable to invite a larger number to take part in the organising of Rhododendron shows and for banding themselves in a cult. It was not proposed to disband the present Rhododendron Society, but he felt sure that with a stronger association the exhibitions would be even more successful than in the past, and he hoped in the future they would be of a sufficient size to fill the new hall. Mr. Gerald Loder, in supporting Mr. Rothschild, considered the time had come to form a larger body interested in the Rhododendron, and the meeting was especially called to consider what its functions should be and how the shows should be best conducted. It might be possible, he said, to hold two shows, one in the spring and one in the summer. He recommended that a small Committee should be appointed to consider details. Other speakers included Sir Herbert Maxwell, Mr. P. C. M. Veitch, Mr. Crosfield, Mr. Gomer Waterer, Mr. R. W. Wallace, Mr. J. Cheal and Mr. J. C. Williams. All were unanimous in supporting the proposal, and the chairman put the following resolution to the meeting, which was carried unanimously: "That this meeting is of opinion that an association be formed to be called the Rhododendron Association, for the purpose of promoting the cultivation of Rhododendrons, and that a Committee be formed to consider details and report to a further meeting to be held toward the end of June." On the proposition of Mr. J. C. Williams, a Committee of six was appointed, three from the existing

Rhododendron Society.—Messrs. Rothschild, McLaren and Stephenson, and Messrs. Gomer Waterer, Crosfield and Admiral Walker-Heneage-Vivian. The Committee, which was given power to co-opt others, will draw up concrete proposals and report to a further meeting to be called at the end of June.

Gardens and Queen Alexandra's Memorial.—Owners of many of the most important gardens in England and Wales have consented to allow the public to inspect their gardens at a fee varying from 1s. to 2s. 6d. in aid of the National Memorial to Queen Alexandra, which will take the form of a visible memorial to be erected on a site adjacent to Marlborough House and facing Friary Court, St. James' Palace, and a fund for extending the work carried on by the Queen Victoria Jubilee Institute for nurses. The visible memorial will be a group in bronze executed by Mr. Alfred Gilbert, typifying Faith, Hope and Charity, as virtues closely identified with the late Queen; it will be erected in a recess of a portion of the garden wall on the site referred to. The great majority of the gardens will be open for inspection in June, although a few may be visited this month and a few others in July, and they will be thrown open between the hours of 11 a.m. and 7 p.m. Gardens in practically every county are included in the scheme. A full list may be had on application to the Hon. Secretary, Mr. F. H. Mitchell, 28, Windsor House, Victoria Street, S.W.1.

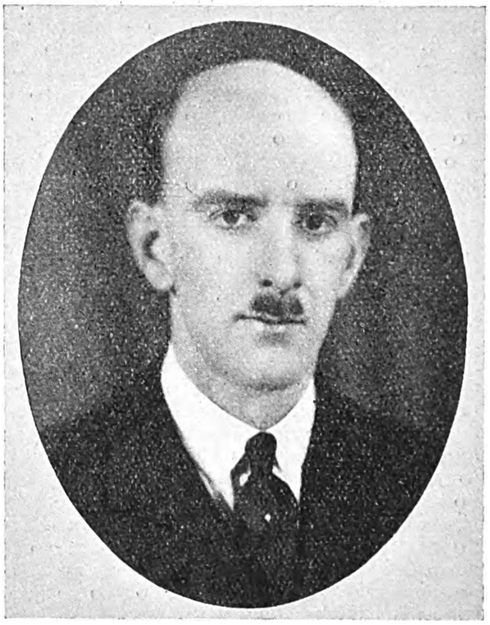
Lilium longiflorum var. sinense.—Blooms of this wonderfully fine form of L. longiflorum were brought to our office a few days ago by Mr. A. Dimmock, who informed us that the bulbs were originally obtained by the collectors of the Yokohama Nursery Company in an entirely new locality in Western China. Neither bulbs nor plants show any signs of disease; indeed, the specimens we saw were particularly robust, and green-stemmed, the flowers being of unusually large size, pure white, and of splendid texture. We learn that comparatively few bulbs of this fine variety have reached this country, although certain American growers for market have cultivated it for some while. As it surpasses any L. longiflorum on the market at present, and flowers early, it is unlikely that British growers will overlook the merits of L. longiflorum var. sinense.

Horticultural Exhibition at Leicester.—A horticultural exhibition is to be held at Leicester on Friday and Saturday, June 10 and 11, in connection with the Leicestershire Agricultural Society's show. The special classes are for a group of miscellaneous plants; a collection of hardy perennial plants and cut blooms (Roses and shrubs excluded), arranged on a space not exceeding thirty feet by nine feet; a collection of Sweet Peas arranged on a space of twenty feet by four feet; and a collection of cut Roses to occupy an area sixteen feet by four feet. Mr. Peter Blair, Trentham, Stoke-on-Trent, is Secretary of the Horticultural Section.

Experiments with Vita Glass.—The first "lap" of the race between two sets of seeds and plants at the Royal Botanic Gardens, Kew, has ended in a victory by twenty-four hours for those grown under the new glass which admits the ultra-violet rays of the sun. Six weeks ago, a selection of typical seeds and plants was duplicated in one of the glasshouses at Kew, one half of which was glazed with ordinary glass and the other with Vita glass. So far, the test has shown that the seeds under the new glass germinated twenty-four hours in advance of the others, and that after three weeks their plant companions, most noticeably the young Lettuces, are of a deeper green and far sturdier growth than those grown beneath ordinary glass, which gave a temperature from 2° to 6° lower than the other.

Association of Economic Biologists.—The next meeting of the Association will be held at 2.30 p.m. on May 13, at the Imperial College (Botany Department, Prince Consort Road), South Kensington, when the subject for discussion will be: "Plant Alkaloids." Lieut.-Col. A. T. Gage, C.I.E., lately Director, Botanical Survey of India, and Superintendent, Royal Botanic Gardens, Calcutta, will lecture on "The Principal Plants yielding Alkaloids"; Dr. T. A. Henry, Director, The Wellcome Chemical Research Laboratories, will read a paper on "The Biochemistry of the Alkaloids," while "The Medical Aspects of the Alkaloids" will be dealt with by Dr. J. Trevan, The Wellcome Physiological Research Laboratories. Students of Biology are cordially invited. The June meeting of the Association will be held on the 17th and 18th at the South-Eastern Agricultural College, Wye.

Mr. David C. Cuthbertson.—Mr. David C. Cuthbertson, younger son of Mr. William Cuthbertson, J.P., V.M.H., of Messrs. Dobbie and Co., Ltd., Edinburgh, is a well-known figure in the horticultural world, although he is a comparatively young man. His wedding took place in East Trinity Church, Aberdeen, on April 21, to Miss Bessie Kerr, A.R.A.M., a daughter of ex-Baillie Kerr, of Messrs. Charles Raeburn and Co., Banff. She is well-known in musical circles in London and has frequently sung at the Queen's Hall and other important concerts. Mr. David Cuthbertson was educated at George Watson's College, one of Edinburgh's most famous schools, and on leaving there at the age of eighteen, he immediately joined the army and received a commission in the Royal Scots Regiment. This was shortly after the outbreak of war. After a period in the Royal Scots he was transferred to the Heavy Artillery Mechanical Transport, and served therein until the cessation of hostilities. He was awarded the M.C. for his services in the army. When demobilised, Mr. David Cuthbertson joined his father's firm, although it had been his intention to pursue a scientific career and to study at Edinburgh University, but the war upset this arrangement. He subsequently took control of the seed Potato department of Messrs. Dobbie and Co., and was appointed a Director of the company about three years ago. He has made a very close study of the Potato, and his paper on "The Relation of Leaf and other Diseases of the Potato to the Crop," contributed to the *Journal of the Royal Horticultural Society*, Vol. L., Part 1, profusely illustrated by photographs of his own taking, is evidence of his thorough knowledge of the subject. He is now recognised as an authority upon matters appertaining to the Potato, and is a member of the Potato Synonyms Committee of the Board of Agriculture of Scotland. He has also devoted considerable attention to the Sweet Pea. At the great shows throughout the country, and particularly in London, he has on many occasions evinced his skill as an exhibitor, and many of the exhibits staged by him have been notable for their originality of design. He is well-known and greatly esteemed in horticultural circles, and an eloquent speaker when he can be persuaded to lecture or make a speech at a social function. His hobbies are photography, golf and music, and he is as happy at the piano rendering a difficult Beethoven sonata as when arranging a Potato or Sweet Pea exhibit. During recent years he has taken up the cultivation of the choicer new Narcissi, and has a fine collection of some of the most famous of the recent introductions. Mr. David Cuthbertson has already achieved great things in the horticultural world and, given the health and strength all his friends wish him, he should accomplish even greater things.



MR. DAVID C. CUTHBERTSON.

Silver Cup for Paeonies.—The second of three cups presented by Mrs. Edward Harding is offered for award in 1927 for the best exhibit of three flowers of each of six varieties of Paeonies shown by an amateur. Banksian Medals in Silver-gilt and Silver are offered by the Royal Horticultural Society as second and third prizes. The competition will take place either on June 8 or on June 21, according to the season, at the Royal Horticultural Society's Hall, Vincent Square, Westminster. The decision as to the date of the competition will be made not later than May 27, and a card will be sent to all who have written to the Secretary of the Royal Horticultural Society, asking that the notification should be sent them. Entries must reach the Secretary not later than by the first post on the Wednesday preceding the competition.

High Hall Anemones and Narcissus Nanette.—The High Hall strain of Anemones, to which an Award of Merit was granted by the Royal Horticultural Society on Tuesday, April 26, was shown by Mrs. Bernard, High Hall, Wimborne, and not by Messrs. Bernard, as stated in our report on page 309. We learn that Narcissus Nanette, to which an exhibitor's name was not attached, was shown by Mr. H. G. Longford, Bath Street, Abingdon, Berkshire.

Frankfurt Palm Garden.—The future of this celebrated Palm garden and grounds is still uncertain, no definite plans having yet been adopted for its administration and upkeep. It may be recalled that this establishment was one of many which suffered severely during and after the war from lack of personnel and from the difficulty of obtaining the necessary materials, chiefly fuel for heating the houses. In 1913, seventy-two gardeners and other workers were employed, at a yearly total wage of eighty thousand marks; in 1926, the annual wage-bill was only sixty-six thousand marks, and the personnel had shrunk to thirty-two. Moreover, the hours of labour having fallen from nine-and-a-half to eight per day, the actual work accomplished is even less than the number of workers would suggest. Many of the rarest and most delicate plants were lost during the difficult war and post-war period through lack of warmth; the well-kept turf in the grounds was allowed to deteriorate to the condition of a meadow, with a couple of mowings per season; indeed, such were the hindrances with which the Directors had to cope, that it was only by excellent management of their dwindled resources that they were able to carry on at all. Even at the present time, the price of heating coal is about twice what it was in 1914. Those who have the interests of the Palm Garden at heart, and who wish to see it restored to its pre-war condition, are pressing the Frankfurt Municipal authorities to take it over and maintain it out of town funds, and it is understood that this is the view of the Director, Herr Bromme. In certain circles, the suggestion has been made to convert it into a Botanic Garden; but, on the whole, the opinion is held that while Germany is well supplied with Botanic Gardens, the Frankfurt Palm Garden is in many ways unique, and is known far outside the town itself, for which, indeed, it has won a considerable repute through the foreign visitors who have seen and admired it in its pristine glory. It is suggested that an exhibition, held in the grounds, would attract many visitors and help to lighten the expense which must, in any case, be heavy, of rebuilding the Palm house and putting the rest of the establishment in order. The exhibition was mooted some time ago, but has not yet materialised.

Lyons Horticultural Exhibition and Fair.—The Autumn Exhibition and Fair, which takes place every year at Lyons, France, will be held this year from November 6 to 13. It is organised jointly by the Fair Committee and the P.L.M. Railway Company. For 1928, an International Flower Show is projected, to be held from September 26 to October 4.

Flowers for Mothers' Day.—The Florists' Telegraph Delivery Association has made arrangements for the observance of the second Sunday in May (May 8) as Mothers' Day. During the week commencing May 2, all the British members of the F.T.D.A. were invited to arrange special Mothers' Day Window Displays. This day was instituted in America and Canada eighteen years ago and officially adopted by the British Unit last year. It has now been adopted by the florists in Austria, Belgium, Germany, Holland, Switzerland and Scandinavian countries, and has, therefore, become an international institution. The idea is to establish the custom of gifts of flowers to mothers on that day. Through its organisation, the F.T.D.A. guarantees delivery of flowers in any of the countries where it is represented, so that sons and daughters away from home may arrange with a florist for delivery of fresh flowers to their mother on May 7. One of the reasons for selecting a Sunday as Mothers' Day is that sons and daughters living at or near their parents' home may present flowers personally on that day, or if they have lost their mother they may take flowers to her grave on the Sunday. The F.T.D.A. will be represented at Chelsea Show, and its annual general meeting will be held on May 25, at which it will be reported that over 300 British florists are now members. The Annual Dinner will be held the same evening at the Holborn Restaurant, tickets 10s. 6d. each, obtainable from members of the Committee or from the Hon. Secretary, Russell Chambers, Covent Garden, W.C. 2.

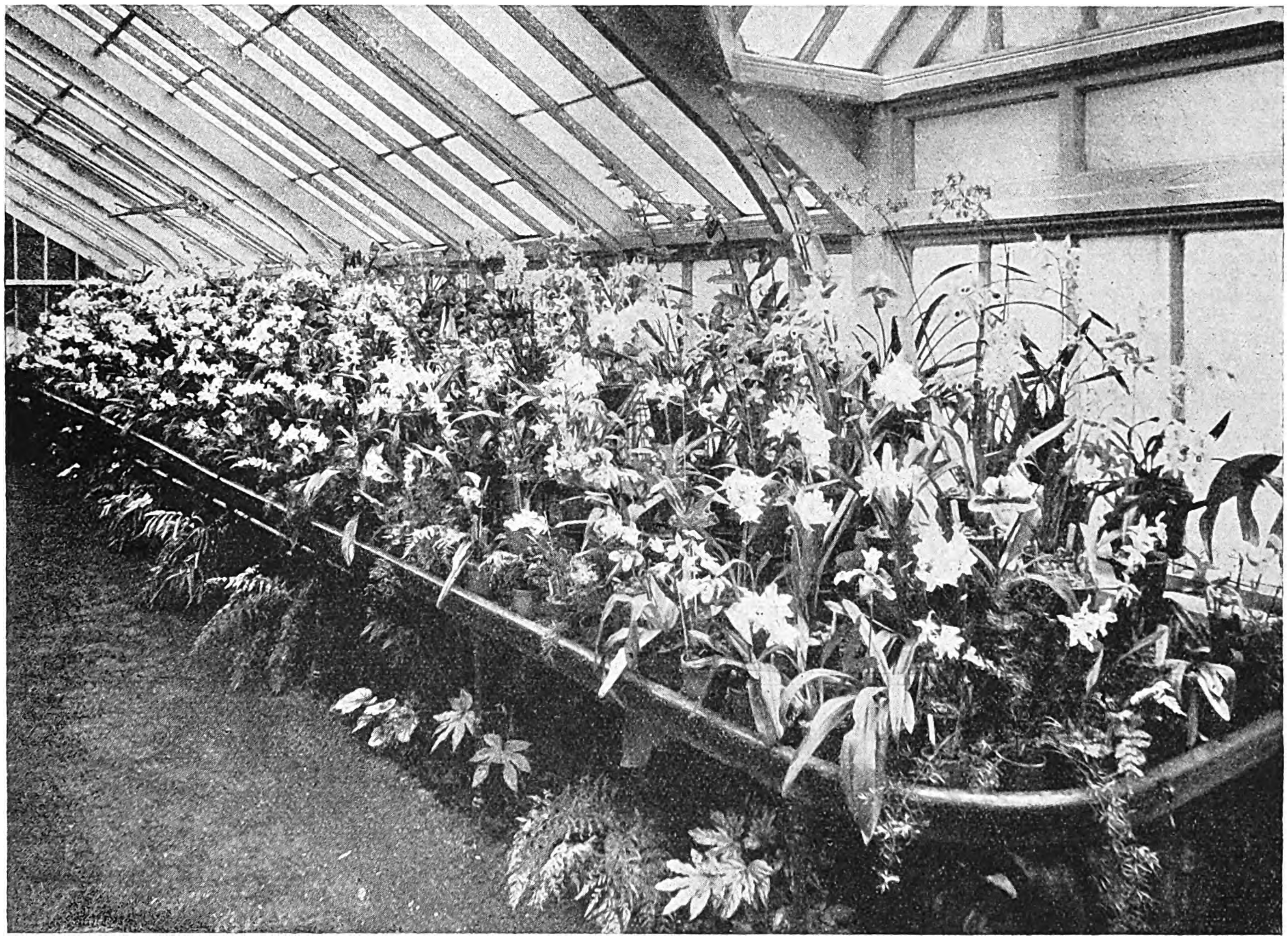


FIG. 151.—ORCHIDS AT TOLLCROSS PARK, GLASGOW.

Orchids in Glasgow Public Parks.—The accompanying illustration (Fig. 151) depicts a bank of Orchids arranged in one of the Show Houses in Tollcross Park, Glasgow. The collection shown comprised many fine spikes of Odontoglossums and Cymbidiums, Dendrobiums and a number of well-flowered plants of Cypripediums and Lycastes. Orchids are grown extensively in the Glasgow parks. In Tollcross Park alone some 10,000 plants are grown, chiefly Odontoglossums and Cypripediums. The success attending their culture may be judged from the illustration. Glasgow appears to be unique in the number of winter gardens it possesses in its Parks Department, and also in the number of Orchids grown as a municipal collection. The photograph was taken just after Easter, and Mr. W. Besant, the Parks Superintendent, informs us that although the houses were packed with visitors during the Easter holidays not a single plant in the group of Orchids was damaged in any way.

Holland County Potato Show.—The Holland County Potato Show will be held in Spalding on October 27, 1927.

Appointments for the Ensuing Week.—Monday, May 9: United Horticultural Benefit and Provident Society's meeting; Guildford and District Gardeners' Association's meeting. Tuesday, May 10: Royal Horticultural Society's Committees meet; National Tulip Society's Show (two days); Horticultural Club's dinner and lecture at the Trocadero Restaurant, Piccadilly, W.; Jersey Gardeners' Society's meeting. Wednesday, May 11: Sheffield Chrysanthemum Society's meeting. Friday, May 13: Association of Economic Biologists meet; Royal Horticultural Society of Ireland meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Coelogyne Wallichii and maculata.* —Having stated that I conceived the first of these would be grown as freely as Crocuses, and would make beautiful winter- and autumn-flowering plants, one of your correspondents requires to know how they are grown, as hitherto he has not been successful with them. My gardener plants them in mould rather richer than that usually adopted in the culture of other terrestrial Orchids, grows them fast in a warm house, and when they go to rest they are kept nearly dry but well exposed to the sun; and I believe the two points to be attended to are to obtain a vigorous and quick growth and a long rest. The plants propagate freely. About two years ago I had good, well-established, but small, plants from Messrs. Veitch, of Exeter, and I have a good-sized pot of each, besides a few spare bulbs which have been distributed. I should observe that the leaves are very liable to scorch, and that C. maculata hitherto has not flowered freely, but this year the bulbs are much larger than those of last year, the soil having been enriched; the leaves of some of the plants of C. Wallichii are more than ten inches long and nearly four inches broad. *Dodman, Gard. Chron., May 8, 1852.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Cypripediums.—Plants that produce their flowers late in the season and are past their best should be attended to at once, should they require repotting. Plants starved for the want of new material seldom attain such vigour and health as those which have the necessary attention as they require it. When all that require it are repotted, it is advisable to cleanse them thoroughly before putting them in their growing quarters. Each plant should have room to develop its growth, and should not require attention again until the autumn when, previous to flowering, it will be the better for another cleansing.

Maxillaria.—The genus Maxillaria includes species having widely different habitats; some grow wild in the hot valleys of Brazil and Guiana, others are found in the West Indian Islands, and still others in the Andes at several thousand feet elevation, so that there is a decided difference in the temperatures they need. Amongst the best known and the most useful of these interesting plants that are commencing to grow and need attention at their roots at the present time are M. candida, M. grandiflora, M. Mooreana, M. nigrescens, M. picta and M. venusta. These species may be grown either in ordinary flower pots or shallow pans. They develop, as a rule, numerous small roots and require considerable surface space in which to ramify in the open, porous compost used for them.

Compost.—A mixture of Osmunda fibre, A.1 fibre and Sphagnum-moss, cut into rather short portions, provides a suitable rooting-medium. The receptacles should be half-filled with drainage material, for although the plants require liberal supplies of water when they are growing actively, the roots soon perish and decay in a sour compost: Newly-potted plants should be placed in a shady position and watered very carefully until the new roots have grown freely in the fresh compost, as there is a danger of the pseudo-bulbs decaying at this stage in a wet material. Afford the plants only sufficient water to keep the moss on the surface healthy and alive, but their surroundings should be kept humid and moist until growth becomes active and roots plentiful, when liberal supplies of moisture should be afforded. Such species as M. fucata and its variety, Hubschii, M. Sanderiana and others which are now showing their flower spikes, should not be disturbed at the roots until the flowers have faded, when they may receive immediate attention. Owing to the flower spikes of M. Sanderiana and M. Lindenii being sometimes decumbent, the plants should be grown in teakwood baskets, with Fern rhizomes instead of crocks for drainage, to allow the flowers to push easily through the base of the receptacle. All the species mentioned succeed in an intermediate temperature, and need a humid, moist atmosphere.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Brassicas.—So soon as seedling Brassicas are large enough, they should be pricked out into nursery beds, at a distance of about four inches apart each way. Much better results are obtained in this way than by leaving them crowded in the seed-bed, as is often the case. Keep the leaves lightly dusted with old soot as a deterrent to the fly that attacks them.

Celery.—So soon as the seedlings intended for the late crop are ready they should be pricked out, about three inches or four inches apart, in cold frames containing good soil, consisting of loam, old Mushroom-bed manure, leaf-mould, and a little burnt refuse. The frame should be kept rather close for a few days and the seedlings sprayed and kept shaded in hot, sunny weather. Keep the leaves lightly dusted with old soot as a preventive against the Celery fly.

Lettuce.—Seeds of this salad should be sown fortnightly, in rows, in well-manured ground, which should be made firm before sowing. At this time of the year, Lettuces should be left to grow where they are sown, as transplanting gives them a severe check. Thin the rows and stir the ground with the Dutch hoe, especially during dry weather. Should the soil be very dry at the time of sowing, draw out the drills and soak the soil with water before scattering the seeds.

Thinning Crops.—This important work should never be neglected and ought to be done while the seedlings are small, for if the plants are allowed to become crowded they make long-necked weakly specimens, which are never satisfactory. A second thinning soon becomes necessary, and at that time it is easy to see which are the best plants to retain. Immediately after these operations, dust the seedlings with old soot, and stir the ground well with the Dutch hoe.

Asparagus.—Carefully cut the stalks of this vegetable daily, tie the shoots into bundles, and stand the cut ends in saucers of water until required for use. Do not cut the weak growths; these should be allowed to develop and thereby help to strengthen the crowns.

Turnips.—Continue to sow Turnips for successional cropping, choosing a cool site. Keep the foliage dusted with old soot, which will do much to ward off the Turnip fly, and at the same time stimulate the young plants.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Carnations.—Young plants of Perpetual-flowering Carnations that were propagated early to produce flowers during the autumn and are now growing in three-inch pots should be ready for transferring to six-inch receptacles. If, however, it is intended to flower the plants in seven-inch pots transfer them at this stage to five-inch pots. The compost for this potting should contain a larger portion of loam than that used for the earlier potting; in fact, the only other materials I advise at this stage are sharp sand, a small quantity of old Mushroom-bed manure, and a sprinkling of Carnation manure. Now that the nights are warmer the plants may be grown in a cold pit or frame in a sunny position. The frame should be shaded from bright sunshine until the young plants have become established in the new soil, and water should be applied sparingly, for if the soil becomes sour before the young roots are active the plants will not succeed. A small stick should be placed to each plant to keep the young growths upright. Watch carefully for aphis and on its first appearance take means to destroy the pest by fumigating the plants with XL All insecticide.

Primula obconica.—This Primula has been greatly improved during the past few years, and seeds of a good strain should be sown in six-inch pots. The receptacles should be well-drained, filled with light soil, and kept in a warm greenhouse until the seedlings appear. The seeds are somewhat slow in germinating, and care must be taken to prevent the soil becoming dry, for which reason it should be shaded from bright sunshine. Prick off the young plants so soon as they can be handled, and stand them near the roof-glass in a cool pit or frame. Transfer them to small pots later, and when these are well filled with roots they should be placed in receptacles five inches or six inches in diameter, in which they will flower. A cold frame will suit them admirably; admit air to the frame freely. The compost for the final potting may consist chiefly of good fibrous loam with one part leaf-mould and a little dry cow manure, adding sand to ensure a free passage of water. This Primula enjoys frequent applications of liquid manure when commencing to flower.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Plums.—The fruits are swelling freely and should be well-thinned with a pair of scissors, retaining those for preference where there are plenty of leaves. As the earliest fruits have barely passed the stoning stage, mulching, feeding and syringing must be continued for a considerable time. Pure, soft water only should be used for syringing, and the syringing should be sufficient to wet all the fruits thoroughly. The appearance and quality of Plums are spoiled when the bloom is destroyed and partial wetting or light sprayings often cause spots on the fruits, whilst thorough syringing leaves the bloom intact. Grubs and aphides should be kept in check by fumigating the house on several occasions.

Planting Young Vines.—May is the best month for planting young vines, as solar heat supplemented by a little fire-heat produces conditions most genial to the young vines which, when planted early, have a full season for making their growth and ripening their wood. Those who have facilities for propagating vine-eyes should root them in February and have young canes ready for planting out in May or early June. If the instructions of previous calendars have been followed, home-grown vines intended for spring planting will have been transferred to pots large enough to prevent too much coiling up of the roots, as all young vines grown in pots from eyes of the current year should be planted before they become pot-bound. If the balls of earth and roots are suitably moist, they may be pressed gently just to break their solidity. The points of the roots will then fall away, and if the vines are shaded for a few days after planting, they will soon recover and reach the tops of the rafters long before the end of the season. The time to plant is when the soil of the new border, which need not exceed three feet in width, is fairly settled and warmed through. Cover the roots with fresh, warm compost reserved for the purpose. The distance to plant is a matter the grower must settle for himself, for length of rafter and the future mode of pruning and training must be taken into consideration. If they are to be trained as single rods and pruned on the short spur system, three-and-a-half feet to four feet will not be too much space. Supernumeraries intended for fruiting one year after planting are best kept out of the main border, as this method is not profitable. It is better to plant such vines against the back wall and remove them so soon as they have fulfilled their purpose. After planting is finished, each vine should be given a little warm water to settle the compost about the roots. The front ventilators should be kept close until the roots are established in the soil and the young canes growing freely. The less the top lights are opened the better for a few days, always provided the temperature does not exceed 80° to 85°. Supply the necessary moisture by lightly syringing the vines and by damping bare spaces in the vinery.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Late-planted Trees.—Young Peach and other trees that were planted somewhat late in the season and left unpruned to allow for the soil to sink before finally securing the shoots in position should, now that the surface soil is much drier, be given attention. Tread the soil over and about the roots firmly, so that the new roots may be in close contact with the earth. If the shoots are of medium strength and breaking evenly very little pruning will be necessary, but where the shoots are long and immatured, shorten them back to within fifteen or eighteen inches of the base. Train the shoots at equal distances apart to form an evenly-balanced head. As the new growths extend, remove the superfluous ones, but preserve the best and most suitably placed young growths for extension and for furnishing bare spaces. Keep a keen watch for green and black aphides, and should these pests be detected during the early stages of growth, syringe the trees at once with a nicotine insecticide. Clean, early, healthy growth should be encouraged so as to obtain the best results. This applies to all fruit trees, but more especially to those that fruit on one-year-old shoots.

Apricots.—Trees that are protected by glass copings, blinds, etc., are growing freely and should be given attention both at the roots and the top growths. Pinch the shoots to encourage fruit spurs, and remove any that are ill-placed or crowded. Train in any that are required for furnishing the space or for extension. Thin the fruits early, especially where they have set in clusters, leaving those best situated and most promising to make good-sized specimens. Examine the roots and water the soil freely if it is found to be dry, this being very necessary in the case of trees growing under glass copings.

General Remarks.—The ground is in a favourable condition for working, and the hoe should be used freely, both for the destruction of weeds and to stir the surface, which has become hard after the heavy rains. Promoting a fine tilth will allow the sun's warmth to enter the soil and also check evaporation of moisture. In the case of heavy soils it may be necessary to fork the ground lightly instead of hoeing it.

THE FLOWER GARDEN.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Hardy Fernery.—Hardy Ferns often suffer from an excess of tidiness, such as cutting off the old fronds before the young growth is well advanced. Such procedure does not add to the appearance nor conduce to the general health of the collection; indeed, it is doubtful whether it is at any time wise to remove the old fronds, as they shade the ground and help to conserve the soil moisture, which is so important for the well-being of these beautiful plants. If it is desired to remove the old foliage it should not be done until growth is well advanced, and the removal of the faded fronds should be followed by a mulch of decayed leaves. If on a large scale, the hardy fernery should be in a semi-wild condition, and in most parts of the country some degree of shade, more or less, is necessary for all but a small number of hardy Ferns. Because of this a variety of hardy bulbous and herbaceous plants may be naturalised in the fernery, the former including Scillas, Snowdrops, Chionodoxas, Cyclamens, Anemones, such as A. apennina, A. blanda, A. Hepatica, A. ranunculoides and A. nemorosa and its varieties. Among herbaceous plants may be mentioned Lily-of-the-Valley, Polygonatum multiflorum (Solomon's Seal), and other species; Omphalodes verna, Asperula odorata (Sweet Woodruff), Myrrhis odorata (Sweet Cicely), Primroses and ordinary Paeonies.

Anemone coronaria.—The many varieties of this plant, with both single and double flowers, are invaluable, not only for bedding purposes, but also for supplying cut blooms. Dry roots are commonly purchased, and where required for bedding out, this is the most convenient method of raising a stock. If, however, the plants are required to supply cut flowers, they may be raised from seeds which may now be sown out-of-doors on a border in the kitchen garden or reserve garden. To facilitate the even distribution of the seed it should be mixed with sand. Seeds may also be sown about the beginning of March, pricking the seedlings off into boxes and subsequently planting them in their flowering quarters. Anemones enjoy a rich, well-manured soil.

Bedding Plants.—All plants sufficiently forward should be removed to cold frames or other shelters where they may be gradually hardened. If not already done, tuberous-rooted Begonias intended for bedding purposes should be started into growth. Continue to transplant recently-sown half-hardy annuals.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Early-flowering Chrysanthemums.—The cuttings of these Chrysanthemums which were inserted early in March are ready for planting where they are intended to flower; they should, if hardened properly, grow away without a check. The earlier varieties, of which Craigmillar may be cited as an example, may be usefully employed for filling beds in the flower garden, as they come into bloom early and continue to give a bright display over a long period. The greatest value of these Chrysanthemums, however, is for use as cut flowers, and for this purpose, they are best planted in rows or blocks of one colour where they may be readily protected, if need be, from damp and, in industrial districts, from smuts and soot. The number of varieties in commerce seems endless, and while all the members of the well-known "Masse" family may be depended on to do well, a few of the newer kinds should be tried from time to time. Allow each plant ample room to develop; a space of from eighteen inches to twenty-four inches apart will be required, according to the variety; the bushy sorts will fill the larger space, and the more slender-growing varieties, such as Goacher's Crimson, will be well provided for in the lesser one.

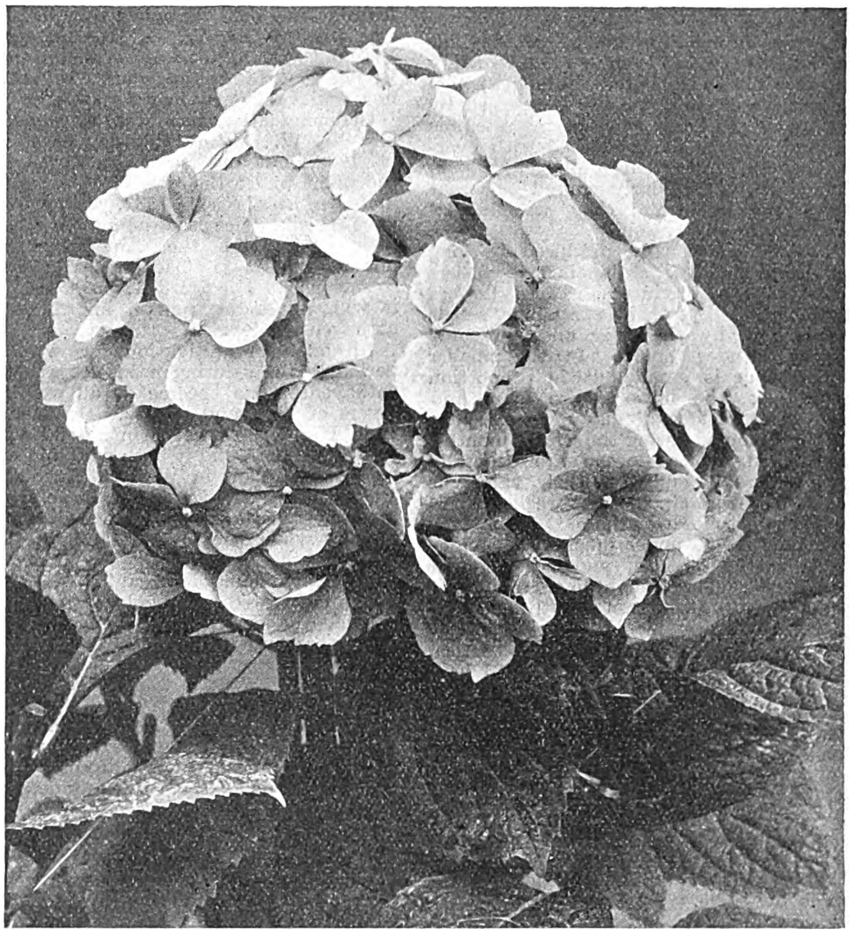


FIG. 152.—HYDRANGEA H. B. MAY.

R.H.S. Award of Merit, April 26. Pink, shaded with mauve. Shown by Mr. H. J. Jones.

(see p. 309).

Bedding Out.—Although it is too early to risk putting tender subjects in the open, all plants intended for this purpose should be kept as hardy as possible, and have plenty of air admitted to the frames in which they are growing. The trend of modern gardening seems to be towards the cultivation of the hardier plants, and many of these may now be planted with every prospect of success. Nepeta Mussinii, to mention one plant, seems to have become exceedingly popular, and although not quite hardy on wet, heavy soils, it may be readily propagated by means of cuttings inserted in a cold frame in October, and such plants are now ready to be planted out. The different varieties of Lobelia cardinalis may, if they have been wintered under glass, be placed in their summer quarters; also Pentstemons rooted from cuttings inserted last autumn. The frames these plants have occupied may be used for the protection of a variety of spring-raised plants still occupying positions in the houses and now requiring additional room. Their removal to frames will allow more room for later seedlings and for the many tender subjects that are crowding each other.

Vegetable Garden.—Plant spring-sown Onions on the first favourable opportunity, in rich, deeply-dug ground. A quantity of wood-ash lightly forked into the soil before planting, and a dressing of superphosphate of lime, will be of great assistance to this crop, while occasional light dressings of sulphate of ammonia or nitrate of soda given when the plants are in active growth will keep them growing vigorously. Peas requiring staking should be attended to early and more rows sown as required. Turnips may now be sown in larger quantities, and a sowing of Turnip-rooted Beet made on a sheltered border. The maincrop of Carrots should be sown immediately. Where the Carrot-fly is troublesome, spraying the plants occasionally with a strong-smelling insecticide, such as Germite, should be resorted to.

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM SYLVIA M. AGGS.

Frederick J. Hanbury, Esq., Brockhurst, East Grinstead (gr. Mr. Farnes), sends a fine flower of his new Odontoglossum named as above, and raised between O. Amethyst, Glebelands variety, and O. Jasper; it is of the highest quality in size, perfect form and rich colour. The broad sepals and petals, which are bright violet-purple have blush white margins partly surrounding the coloured area and some lavender, transverse, wavy lines. The large, broadly oval lip is pure white in front and heavily marked with violet in the basal half and around the prominent yellow crest. It is one of the best Odontoglossums we have seen.

ANGRAECUM.

This very interesting genus of Orchids includes many very handsome as well as many curious species with elongated spurs by which the Angraecums are most readily recognised by horticulturists. In habit Angraecums resemble the Aërides, having stems clothed with evergreen, leathery, distichous foliage, which, in some kinds, is regularly curved so that even when not in bloom, they are graceful plants worthy of cultivation.

The flowers are usually produced in long racemes from the leaf axils, but in others single blooms are produced. These flowers are characterised by their spreading sepals and petals and by the long and, in some cases, very slender spur. In the smaller species this spur is small but in proportion to the rest of the flower quite large and distinct. The fact that many Angraecums produce their blooms during the winter months, a period when choice flowers are generally scarce, considerably enhances their value, as the blooms last from six to eight weeks in perfection, and sometimes even more.

Angraecums thrive under precisely the same treatment as the Aërides, and need similar potting material. They delight in an abundance of heat and moisture whilst in growth, with less during the dull winter months. Being mostly natives of Madagascar and tropical Africa, they are best grown in the warmest house. To this rule, however, A. falcatum is an exception; coming from Japan it succeeds best in a lower temperature.

The smaller-growing kinds, with their drooping spikes, should be grown in small pans or baskets so that they may be suspended when in bloom.

Although many of the strong-growing species have thick, leathery foliage, this is not capable of withstanding strong sunshine, hence a shady position is desirable.

Angraecum eburneum is one of the most robust Orchids known; A. hyaloides and A. distichum are two of the smallest species, while the interesting A. sesquipedale is the largest.

Upwards of forty awards have been made by the Royal Horticultural Society to the different species and varieties placed before the Orchid Committee, and many have been figured in *The Gardeners' Chronicle.*

There is one artificially raised hybrid, A. Veitchii, which was shown on January 10, 1899, when it received a First Class Certificate, and the late Mr. J. Seden was granted a Silver Medal for raising it. The parents are A. eburneum × A. sesquipedale.

Among the best of the tall-growing species, A. Ellisii, A. descendens, A. eburneum, A. Eichlerianum, A. pellucidum, A. pertusum, A. Scottianum and the incomparable A. sesquipedale may be mentioned, whilst among the smaller-growing the following are all worth the attention of growers:—A. apiculatum, A. articulatum, A. bilobum, A. b. Kirkii, A. caudatum, A. citratum, A. crenatum, A. distichum, A. Chailluanum, A. falcatum, A. fastuosum, A. fragrans, A. fuscatum, A. Germinyanum, A. hyaloides, A. Kotschyi, A. Humblotii, A. Leonis (syn. Aëranthus Leonis), and A. modestum. *J. T. B.*

TREES AND SHRUBS.

CYDONIA CATHAYENSIS.

(See Supplementary Illustration.)

Although by no means common in this country, there are several gardens in which the large-fruited Cydonia cathayensis is represented by young, robust trees. It is a plant of open, irregular habit and furnished with formidable spines. The white flowers are arranged in short clusters, after the fashion of better-known species, and they are about an inch-and-a-half across. The fruits are large and may be so much as six inches long and over three inches wide, oval, and light green in colour, becoming yellowish with age, and weighty. When fruits are produced freely this tree is very attractive and it is necessary to support the branches to prevent breakage. The branch figured in the Supplementary Illustration was sent by Mr. W. H. Honess, gardener to Viscount St. Cyres, at Walhampton Court, Lymington, Hampshire, where a robust specimen now fruits regularly every season.

Cydonia cathayensis was so named by the late Mr. W. Botting Hemsley in *Hook. Icon.*, in 1900, but the same authority described the plant under the title of Pyrus cathayensis in *Journ. Linn. Soc.* in 1887. In 1906 Schneider gave this species the name of Chaenomeles cathayensis and the American authorities now refer to it as Chaenomeles lagenaria var. cathayensis. For garden purposes, however, it will, no doubt, remain known as Cydonia cathayensis.

Although in cultivation for a cosiderable period, it is only during recent years that Cydonia cathayensis has become at all well-known to lovers of trees and shrubs. Dr. Henry found it in Hupeh, but never in a wild state. Mr. E. H. Wilson found it both wild and cultivated as a hedge plant in Western Hupeh, in 1907. In *Plantae Wilsonianae*, the flowers of Chaenomeles lagenaria are said to vary from white to scarlet, while those of C. l. cathayensis are described as blush-pink. The fruits of C. l. Wilsonii (Cydonia Mallardii of *Gard. Chron.*, 1915), are stated to be golden and red. There is evidently considerable variation in the colour of flowers and fruits of Cydonia cathayensis.

ERICA ARBOREA.

This robust-growing member of the Heath family is again in full flower and the blossoms scent the air for many yards around. The young shoots are well clothed with innumerable, small, white flowers, and the graceful, feathery foliage adds not a little to its beauty. The plant referred to is about ten feet high and a good deal more across; but for the fact that it has had to be repeatedly reduced in height owing to the position it occupies, it would have grown very much taller, as it is known to reach a height of twenty feet under favourable conditions. This native of Southern Europe is at home in our western districts, and wherever severe frosts are not experienced it should be given a trial.

ERCILLA VOLUBILIS.

This beautiful Chilian plant is flowering with remarkable freedom this season. It is an evergreen climber producing short, closely-packed spikes of flowers of a greyish-pink hue. When young and growing vigorously the plant does not produce many flowers, but even then it is interesting on account of its aerial roots, by which means it is enabled to cling to a wall and reach a considerable height. When the space at its disposal has been filled, and pruning takes the form of simply shortening any straggly-growing shoots, it commences to flower freely.

The plant was formerly known by the name of Bridgesia spicata, after the collector Thomas Bridges who brought specimens home from South America in 1840. It was afterwards given the name of Ercilla volubilis. This Ercilla is quite hardy; never before have I observed it flowering with such freedom as it is doing here this season. *A. T. H., Culzean Castle Gardens, Maybole, Ayrshire.*

ALPINE GARDEN.

LINNAEA BOREALIS.

The Twin-flower of our own northern woods is eclipsed in gardens by its Canadian form, L. borealis canadensis, or L. b. americana. This is more amenable to cultivation than our wilding; it is also larger in leaf, longer in its prostrate branches, and the two bell-shaped flowers which nod on their slender stems are more ample and of a rosier hue.

L. borealis is perfectly hardy while the Canadian form grows as freely on the warm and humid Pacific coast of British Columbia as it does in the lofty defiles of the Rockies and Selkirks.

Any free, cool, vegetable soil will suit this delightful plant, but it should be planted where it can ramble at will among lowly Ferns and other shade-loving subjects. It is never so charming as when threading its way about moss-clad boulders or over rotting tree stumps.

L. borealis is related to the Honeysuckles and the flowers are faintly almond-scented. *A. T. J.*

FLOWER GARDEN.

PHYTOLACCA DECANDRA.

This is an old garden plant yet seldom seen in borders. It is a very attractive subject in the late summer with its large spikes of closely-set berries.

It revels in a damp, heavy soil, needs no special culture, and is a plant easily propagated from seeds. Seedlings will flower in their first year, but two or three years are required to obtain full-sized plants. A good specimen will attain a height of six feet.

The flowers are somewhat inconspicuous, being of a greenish-purple colour, but the spikes of bright, black berries, which are produced at the end of practically every shoot, make amends for the insignificance of the blossoms. *S. W. D.*

LUPINUS NOOTKATENSIS.

This neat and attractive Lupin has been cultivated in our gardens for well over a century, but for some reason the plant has never been so highly appreciated as its merits warrant.

It has disappeared from most of our hardy plant catalogues and is quite unknown to many present-day hardy plant enthusiasts.

Its chief claim to attention is its earliness; it is one of the first herbaceous plants to flower, being usually in full bloom about the middle of April, long before the members of the Polyphyllus section come into flower. It also has attractions when just starting into growth, the young foliage being more like that of a choice stove plant, showing all shades of pink and soft red to purple, best described, perhaps, as shot silk.

When fully developed the plant only attains a height of fifteen to eighteen inches, forming a stiff, erect bush, requiring no staking. The flowers are blue with yellow reticulations.

Being anxious to procure a stock of this Lupin for use as a bedding subject, several sowings were made, both of purchased and home-saved seeds, and it is evident from the resultant plants that some natural hybridization has taken place between L. nootkatensis and L. polyphyllus, for we have numbers of plants that are slightly taller than L. nootkatensis and of a particularly neat habit, but they have retained, to a considerable extent, the early-flowering habit that is so characteristic of L. nootkatensis.

L. nootkatensis will evidently cross with L. polyphyllus and provide a race of dwarf and distinct Lupins that will flower in April, thereby extending the flowering period of the genus that is now of much importance for the embellishment of our parks and gardens.

One may well ask what is L. nootkatensis, and anyone desiring information and no little entertainment will find both in looking up the many descriptions of the plant in garden dictionaries, encyclopaedias, and books on hardy plants; it is quite evident that all, or nearly all, refer to a different plant, so that before this note was penned I obtained the assurance of Kew that the species submitted to them was the true plant. *T. Hay.*

THE NATURAL ROCK GARDENS OF NICE.

THE morning of Easter Monday, April 18, of this year, was spent by me in the study of the rocks and rock plants on the eastern side of Nice. The sea, when I left my hotel at 8.30 a.m., was of the deepest blue. It is impossible for those who have never seen the Mediterranean to conceive how intense and beautiful that colour is. Overhead there was the same tint in the unclouded sky, and while the sun already reminded one by its heat of an English midsummer day; the air was fresh and invigorating, and I forgot that seventy-five years had passed since I first looked on the sun, and upwards of fifty since I gazed for the first time on this wonderful sea, and suffered severely from mal-de-mer during a heavy storm in the Gulf of Lyons. Bending my steps eastward, I passed the boat which, all being well, should convey me in a few days to the Island of Corsica; and as it was the Festival of Easter, entered the Church of Maria sine Labe Concepta for an exercise of devotion. Then, forward. Soon the motor traffic, characteristic of the holiday season everywhere in these days, became fast and furious, and although the rule here is to drive more slowly than in Paris, it was necessary for a naturalist—obsessed with the idea that every plant and insect, every change in the rock formation, and every object of interest must be examined and recorded—to be on guard, since, for such an one it was not easy always to avoid the oncoming monster or crush himself near enough to the jagged rocks to escape injury, and avoid being run down as a nuisance to respectable people. Yet I ran the gauntlet, and returned unscathed.

It is no part of my purpose to treat in detail of the cultivated plants of Nice, or tell over again the story of its splendid Palms, of its enormous Oriental Planes, now in full flower, except where the trees in the avenues are kept closely pruned and pollarded. Nor can I here deal with the native flora as I saw it two days earlier on an excursion to Peira Cava. That merits a chapter by itself. I am concerned no more with the gardens planted and cared for by man. My chief object was and is to study the native rock flora wherever it could be seen in unkempt and uncared for condition, and thus to judge what were the plants which in modern times have spread themselves over the district, established themselves in the various localities, adapted themselves to the different soils, and now give colour and beauty to the landscape as well as interest and perplexity to the nature-student.

Here Nature has laid out her rock gardens on a most generous scale. It is given only to few to imitate her magnificent and care-free grandeur. The volcanic formations seem to hold open arms and court the arrival of seeds of every kind, and the plants respond in the same generous way. Some, perhaps, would find the attention arrested first by the magnificent specimens of Opuntia. Some of these were in fruit, but what impressed me most was the fact that many of them gave evidence of having been shorn of their cuticle. I was curious to know what enemy had done this, and after keeping careful watch for some time, discovered it to be one or more species of Helix with stripes or bands similar to one or two of our native snails.

As I am writing these notes in my hotel, without a single guide to the fauna and flora, or text-book of any kind, they must be looked upon in the light of a popular description rather than as a scientific discourse. Moreover, a mosquito is singing in my ear a melody which I heard so frequently half-a-century ago, that memory recalls a visit to Dr. (later Sir) Patrick Manson in Amoy, in the days when he was beginning to make clear the connection between this unpleasant insect and some of our dreaded tropical diseases.

I observed one thing with great interest. It appeared at times as if Nature had purposely selected plants of a given kind in order to show the artist the secret of the colour scheme. In one place, for example, the dominant colour was yellow, and its vivid contrast, and yet harmony with the ultramarine of sea and sky was marvellous. We sometimes think the colours too vivid which artists employ, but that is not the case. Nature's palette contains the most vivid tints, but I think it true to say they never give offence. It is a question of perfect blending. Here we find large shrubby Euphorbias of three or four different species, a spiny Genista, a very large, bushy Senecio, together with many other Composites closely resembling our Dandelions and Hawkweeds, with Potentillas, and other well-known plants. What will be the dominant colour here in two months' time, I am unable to say, but myriads of young plants of various kinds are beginning already to show that they mean to make a good fight for a place in the sun when they have reached the necessary age.

I have named only the more showy yellow plants in bloom. In other places red or blue predominates. There is the Hibiscus with its fragile-looking petals and golden head, and a well-known succulent plant whose name I cannot for the moment recall, with flowers of a similar size and not too widely different from it in colour. Then the Labiates and Borage-worts abound, and these are usually some shade of blue or purple. The soil, where any is to be found, is stiff, dry, difficult to work, and lacking in tilth. I am writing, of course, of the wild, uncultivated spots; and these contain no worms! During a whole morning's search in the rock gardens I found but one small annelid, a Microscolex less than an inch in length; so that Nature is not at present aided in her tasks here by these useful garden auxiliaries. She has, however, other helpers, in the way of insects of many kinds, whose pleasing task it is to visit the blossoms, and carry the pollen from flower to flower. Some of these insects I have secured for study under more favourable conditions.

And now it remains to mention some of the other plants which abound among the rocks and thrive in many a crook and cranny where to all appearance the foothold is precarious, and the amount of available nutriment small. Here is an Erigeron, with a pale-flowered Fumitory for neighbour. A purple-headed Clover with large, strong, trifoliate leaves, rubs shoulders with two or three Vetchlings. A Daisy-like plant which abounds in places closely resembles, if it is not identical with the pretty rambling form now so popular in our rock gardens at home, known as the Mexican Daisy. The wild Thyme, the small Iberis or Candytuft now used for borders, with sundry Stork's Bills, Sedums, Wormwoods and Linarias are also in flower or even in fruit.

I have said nothing of the shrubs, as a large proportion of these are found everywhere on the sides of the mountains. *Hilderic Friend.*

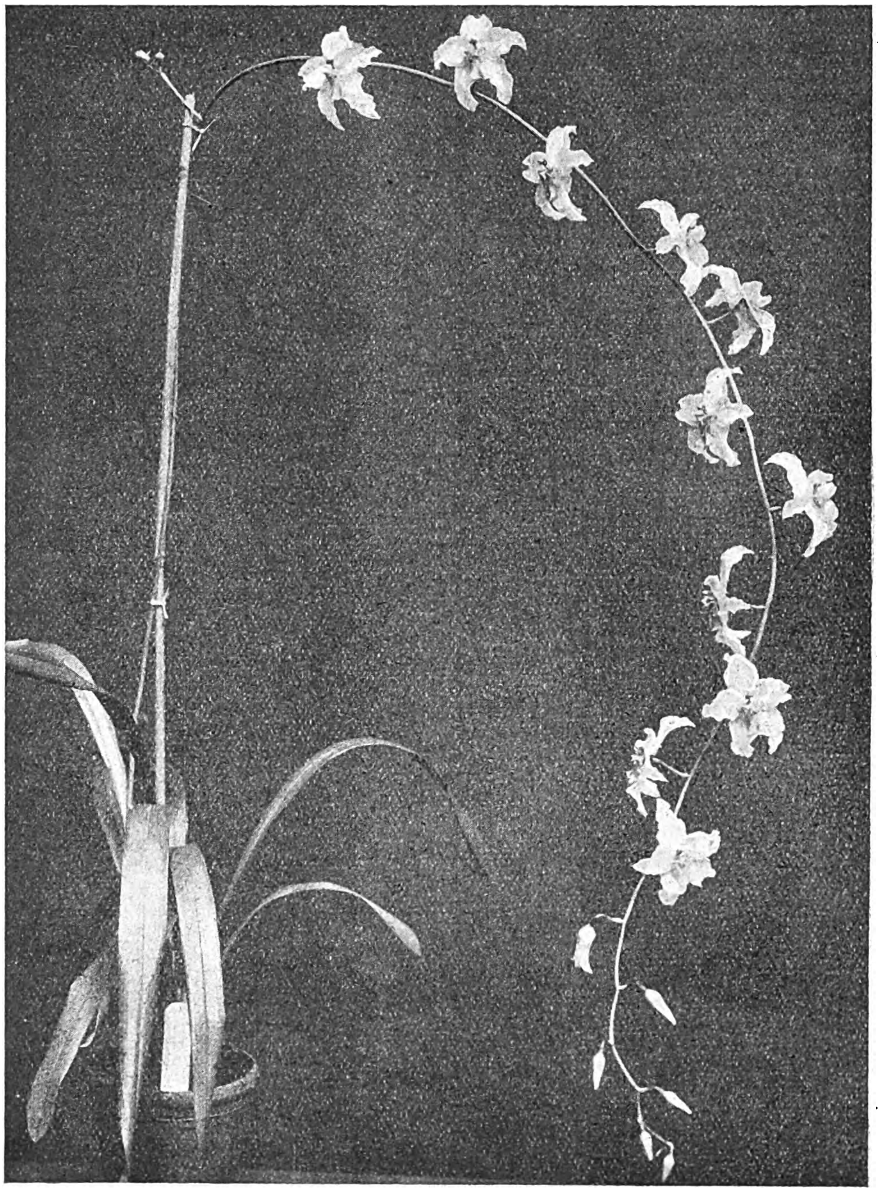


FIG. 153.—BURRAGEARA WINDSOR.

R.H.S. Certificate of Appreciation, April 26. Flowers white and rose. Parentage: Oncidioda Cooksoniae × Odontonia Firminii. Shown by Messrs. Black and Flory. (see p. 309).

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER, *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand [illegible] or by telephone, to Gerrard,* 1543.

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc. but they cannot be responsible for loss or injury.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith*

THE PROBLEM OF BOLTING.

THE phenomenon of "bolting" is often a source of trouble to horticulturists. Broadly speaking, the term applies to those cases in which a biennial plant in the first year of growth instead of producing a normal, vigorous vegetative growth and yielding a normal quantity of stem and foliage (or their botanical equivalents) plentifully supplied with reserve products, employs itself in producing an inflorescence, with the result that a fibrous growth takes place, and the economic value of the plant is lost. Familiar cases of the phenomenon occur in the Brassicas generally, in Onions, Lettuces, and in a very marked degree in the Beet family—garden Beet, the Mangel and the Sugar-beet.

Very little scientific knowledge on the subject of the cause of this phenomenon exists. The monocarpic habit which seems to accompany bolting has been recognised in many species of plants other than annuals and biennials. One of the striking instances is that of the Bamboo, many individuals of which only flower once in a generation and then die. It is curious that in this case the phenomenon sometimes occurs over large areas simultaneously. Thus, in India, it is a native belief that Bamboos providentially flower in a year of famine, so that their seeds may be available as human food. Here, again, the phenomenon is obscure scientifically.

In regard to some of the domestic plants, such as Beet, there is some reason to believe that certain "strains" are less liable to bolt than others; in other words, there may be genetic influences at play. But, on the other hand, the phenomenon is undoubtedly often due to purely environmental causes. Early sowing, for example, seems to stimulate bolting. The first problem for the scientist to settle is, undoubtedly, to differentiate environmental from genetic causes. For example, in the case of the Mangel, is it possible by scientific methods to produce a strain which under *any* condition of environment will not bolt? or a strain which will only resist bolting provided time of sowing, season, etc., are reasonably normal? The geneticist might reasonably expect to find that the annual habit is a Mendelian character, either dominant or recessive to the normal habit; if it should prove to be the former, the task of isolating a pure non-bolting line is comparatively easy; if the latter, the problem, though more difficult, is still soluble. But some work reported by Vilmorin* suggests the presence of some complication, at least, so far as Sugar-beet is concerned; for, in the case of that plant, the bolting habit either is at times dominant and at times recessive, *or* it is not a Mendelian character at all. An Italian worker on the bolting of Sugar-beet (Munerati—Experiment Station, Modena) indeed, comes to the conclusion that the operative factor is solely environment. Undoubtedly, in the wild plant (Beta maritima) forms, varying from an annual to a perennial habit are found, whereas, as we know, the domestic forms of Beet are predominantly biennial.

Again, if one were to reason on the analogy of earliness or lateness of flowering in the cereals, definitely genetic differences might well exist. One should, also, in this connection recall Bateson's work on rogues in Pisum. The rogue character in this case is so interwoven in the tissue of the plant (in chimera fashion) that it cannot be got rid of by the classical genetic methods.

Then, on the physiological side, it would be interesting to know what are the physico-chemical conditions that accompany the switch over from purely vegetative growth to flower and fruit production. This is a problem, of course, which intrigues the fruit grower. It is being attacked at Long Ashton and East Malling, but, so far, with little success.

We understand that shortly before his death, Bateson was engaged on studying bolting in many families of plants. It would be interesting to learn whether the results of his investigations will ever be published, and whether they throw any light on a matter which is of considerable economic importance, while, from a scientific point of view, it is still sufficiently obscure. *A. B. B.*

---

*(1) *L'Hérédité chez La Betterave Cultivée.* Vilmorin, Paris, 1923.

LORD ANSON'S BLUE PEA.

LATHYRUS NERVOSUS.

FOR many years plant lovers have desired to see the so-called "Blue Pea" in cultivation. Although the date of its first introduction is given as 1744, it appears to have always been scarce, and it is certain that very few living horticulturists have seen this plant in cultivation. At last, after many years, a plant is now flowering at Kew—the only survivor of several planted out last season in various positions. The plant in question was raised from seeds received in April, 1926, and was planted out at the foot of the south wall of one of the plant houses.

Kew is indebted to Mr. T. Hay, Superintendent of Hyde Park, for the seeds of this plant. Discussing the re-introduction of this and other plants with Mr. F. Stewart Sandeman, The Laws, Kingennie, Forfarshire, he found that Mr. Sandeman had a correspondent at Puerto Deseado (Port Desire), Argentine Republic, one of the known localities of this plant. Mr. Hay had a painting made from the figure in Sweet's *British Flower Garden*, which painting Mr. Sandeman forwarded to his correspondent, Mr. Robert Littlejohn, who sent a quantity of seeds by return post. He described the plant as growing near Port Desire, usually in crevices amongst rocks.

The plant flowering at Kew agrees in every respect with the herbarium specimens and the various published figures of it, with the exception of the colour of the flowers, but in that respect the species may be variable, as none of the published figures is exactly alike in colour. In the Kew plant the unopened flower-buds

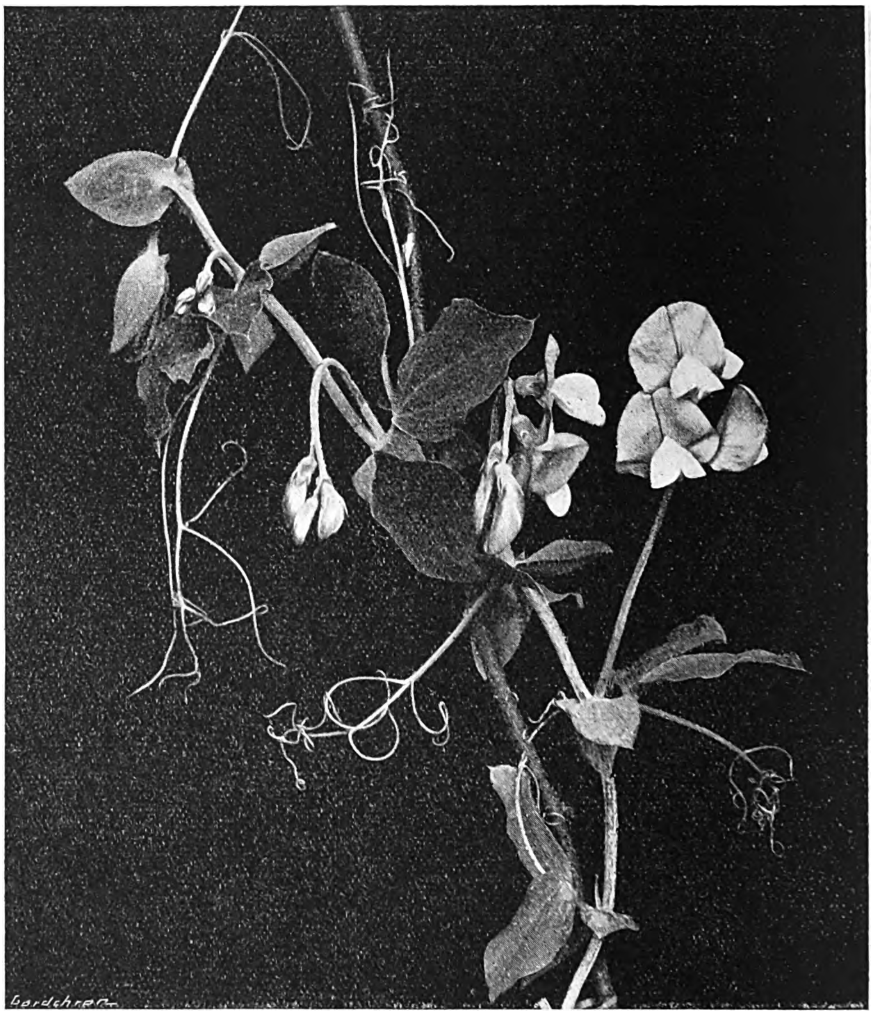


FIG. 154.—LORD ANSON'S PEA: LATHYRUS NERVOSUS.

are a deep purplish blue; in the fully-expanded flower, which is about one inch in diameter this colour is retained more or less on the outside of the standard, the inner side being pale blue. The wings, which meet overhead in a wide arch, are almost white, tinted with blue; the keel is of the same colour. The flowers are sweetly-scented, there being four to five on a raceme.

The stems of the Kew plant have so far attained a height of two feet, and are more or less three-angled. The extremely large, broad stipules are sagittate; the leaves are broadly ovate with a mucronate point. Both stipules and leaves are very distinctly nerved, the nerves being specially prominent in the dried specimens.

It is very doubtful whether this plant will ever be commonly cultivated, judging from the fact that numbers of plants have died in the open, as well as a number grown in large pots in a cool greenhouse, which would indicate that the species requires some particular condition or conditions. In this connection we must remember it is a maritime plant, and many of these are by no means happy under cultivation; it would, therefore, be interesting to learn how other cultivators to whom Mr. Sandeman and Mr. Hay distributed seeds have succeeded with it.

Seeds of the "Blue Pea" are frequently offered, but they are usually Lathyrus sativus, the Chickling Vetch, a native of Europe, an annual plant with blue flowers.

The following notes give the known history, geographical distribution and garden history of Lathyrus nervosus:—

LORD ANSON'S PEA (LATHYRUS NERVOSUS, LAM.).

The first mention which we have of this Pea is in Miller's *Gardeners' Dictionary*, Ed. 7 (1759), as "Cape Horn Pea," No. 5, *Pisum caule angulato procumbente, foliolis inferioribus lanceolatis acute dentatis, summis sagittatis.* In Ed. 8 (1768) Miller gave it the binary name, Pisum americanum. He stated that it "was brought from Cape Horn by Lord Anson's cook, when he passed that Cape, where these Peas were a great relief to the sailors." According to the Rev. C. Wolley Dod (*Gard. Chron.*, Aug. 18, 1900, p. 135), it must have been at Port St. Julian, in southern Patagonia, that it was obtained. Type-specimens of Pisum americanum, Mill., cultivated in the Chelsea Botanic Garden, are in the British Museum Herbarium. They are Lathyrus nervosus, Lam., which was described in 1786 from herbarium specimens collected by Commerson among rocks at Montevideo. The first mention of the name "Lord Anson's Pea," was in Aiton's *Hort. Kew*, Ed. 2, iv, 309 (1812), where the date of introduction is given as 1744, and the species (Pisum americanum) was erroneously reduced to Lathyrus magellanicus, Lam.

It was re-introduced "from the Brazils" in 1834, when it was raised by the Birmingham Botanical and Horticultural Society, and was described in 1839 as a new species, Lathyrus Armitageanus, Knowles and Westc. (*Floral Cabinet*, iii, 81, t. 110). In the meantime, however, it was identified erroneously with L. magellanicus, Lam., by David Don, in 1836, and figured under that name in Sweet's *British Flower Garden*, Ser. 2, iv, t. 344, with L. Armitageanus and Pisum americanum as synonyms. A few years later the species was re-introduced, this time "from Puerto Bravo in south Brazil," whence seeds were sent to the sixth Duke of Bedford, by Tweedie, and was correctly identified by Hooker as Lathyrus nervosus, Lam. (*Bot. Mag.*, t. 3987; 1842). It was figured as L. magellanicus by Lemaire in *L'Horticulteur Universel*, iv, 39 (1842).

Bentham (*Mart. Fl. Bras.*, xv, pars. 1, 115; 1859), distinguished it from L. magellanicus and put the synonymy straight, except that he did not mention Pisum americanum, Mill.

L. nervosus was cultivated in the Trinity College Botanic Garden, Dublin, in 1892, but was named L. magellanicus owing to Bentham's work on the two species having been overlooked.

The Rev. C. Wolley Dod recorded having seen Lord Anson's Pea, for which he accepted the name L. magellanicus, flowering in a garden in Cheshire in 1899 (*Gard. Chron.*, Aug. 11, 1900, 114). In the following year the late Mr. James Britten examined the type-specimens of Pisum americanum, Mill., in the British Museum and reduced that species to Lathyrus nervosus, instead of to L. magellanicus (*Journ. Bot.*, 1901, 97).

The history of Lord Anson's Pea (L. nervosus) under cultivation may be summarised as follows:

1744. Introduced from Port St. Julian, S. Patagonia, and cultivated in the Chelsea Botanic Garden as Pisum caule angulato procumbente, etc., and named Pisum americanum in 1768.

1834. Re-introduced into cultivation from "the Brazils" (probably Uruguay) through Mr. Charles Cope.

1839, or earlier. Re-introduced from "Puerto Bravo" in South Brazil (probably Uruguay) by Tweedie, who sent seeds to the sixth Duke of Bedford (d. 1839).

1892. Cultivated in Trinity College Botanic Gardens, Dublin, as L. magellanicus.

1899. Cultivated in Cheshire as L. magellanicus.

The geographical distribution of L. nervosus is as follows:—Uruguay: On the coast of the Rio de La Plata and in the interior. Argentine: Bahia Blanca, Port Desire, Port Julian, Mount Dinero (on the Chilian boundary near Cape Virgins), Lago Buenos Aires, Lago San Martin, Lago Viedma and Lago Argentino, all to the east of the Andes. Chile: Elizabeth Island, Magellan Straits.

The locality "Puerto Bravo" has not been traced. The form of the name Puerto suggests that it is in Uruguay rather than in Brazil, as "Puerto" is Spanish, "Porto" being the Portuguese equivalent. Uruguay was a province of Brazil for a short time in the early part of the nineteenth century, and specimens collected there by Sellow during the years 1821-1829 are labelled "Brazil." There seems to be no clear evidence of the occurrence of L. nervosus in Southern Brazil.

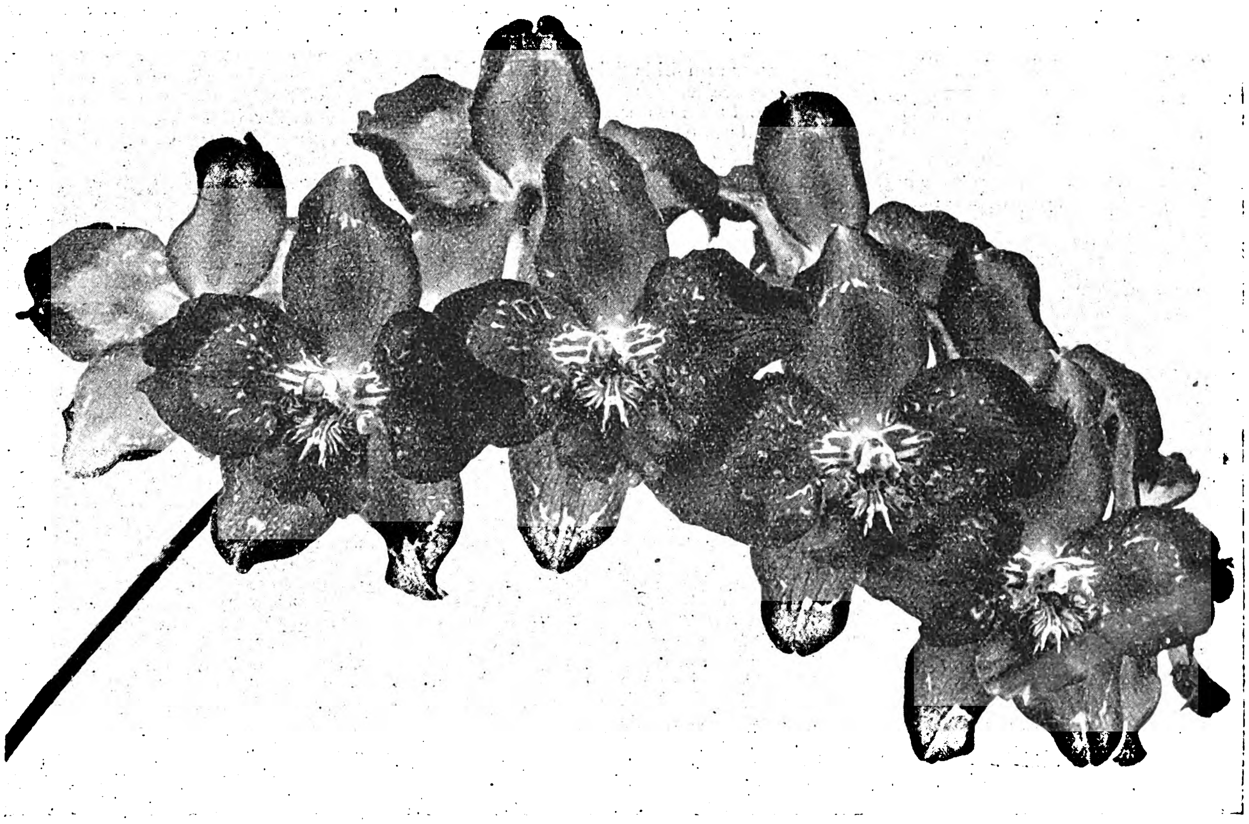


FIG. 156.—ODONTIODA TITIAN.

R.H.S. First-Class Certificate, April 26. Flowers ruby-red, flecked with white. Shown by Mr. J. J. Bolton, Claygate.

I wish to acknowledge the invaluable assistance received from Mr. T. A. Sprague of the Kew Herbarium in comparing the herbarium specimens with the living plant, also for collating the various references to this interesting species.

There is no record, so far as I can trace, of the true L. magellanicus—with which L. nervosus has so often been confused—ever having been in cultivation. Although it is no doubt closely related to L. nervosus, a large range of herbarium specimens show it to be a plant of a very different leaf-character, and with smaller flowers.

Last year, Kew received seeds from a correspondent at the Straits of Magellan of what was supposed to be L. nervosus; the young plants are certainly not of that species, and it is possible they may prove to be the true L. magellanicus. *J. Coutts, Royal Gardens, Kew.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

In my last note (page 268), I stated that a bush of Viburnum Carlesii which was defoliated by aphides last year was not bearing a single flower this year. So far is this from being the case that this morning I counted twenty-four clusters of expanded flowers upon it. Most of the clusters are much smaller than usual, and a casual inspection from some distance had caused me to think that the bush was flowerless.

Tits have a pernicious propensity for the honey stored in the flowers of Rhododendron barbatum and R. fulgens, cruelly disfiguring the display on both species. It is remarkable that, although the blossoms of R. Thomsonii and its hybrids are equally full of honey and are of a similar attractive scarlet, the tits leave them severely alone. One blue tit—Parus caeruleus—here has developed a corrupt taste for putty, returning continually to a pane recently repaired in the drawing-room window and picking out the putty. This is inconvenient, but one cannot be angry with such a fascinating little thief.

Another marauder is a profligate old cock pheasant which nips off and devours the bells of white Fritillaries on a bank under my bedroom window. He makes his breakfast on them before I can get on my boots.

Some of the Megasea section of Saxifrages are very handsome; unluckily, most of them flower so early that their panicles of bloom are apt to be disfigured by frost. One of the showiest of them, S. Stracheyi, seldom escapes; but is well worth growing in a cool house or frame for the beauty of its pink and white flowers. S. ligulata is a hardier plant, bearing some resemblance to S. Stracheyi. The best of the deeper-coloured species is S. Delavayi, which delays flowering till April and is seldom harmed, although its blossoms were destroyed by 7° of frost on May 15, 1926. The flowers are rich crimson, carried on erect spikes twelve to fifteen inches high. That which is grown in some places as S. Beesiana seems to be the same species.

Berberis Aquifolium pinnata (Mahonia fascicularis of De Candolle) is a fine sight in mid-April, loaded with clustered spikes of fragrant, yellow flowers. A North American plant, few gardeners seem to be acquainted with its merit, probably because in a young state it resembles the common Mahonia, B. Aquifolium. It is, indeed, no use planting it except where it has planty of room to develop, sheltered from cutting winds, but not overhung by trees; under such conditions it attains great proportions. Ten years ago I measured a specimen in the grounds of a neighbour. One side of it had been cut hard back to clear a gravel path; another side was jammed against a Yew hedge, yet the circumference of this bush was 135 feet, and its height eighteen feet. Berberis Darwinii, already twenty feet high here, promises to reach similar dimensions, and a bush of B. buxifolia is 120 feet in circumference. Of the latter species I found, several years ago, an early-flowering variety in Lady Alice Shaw Stewart's garden at Ardgowan. I secured a layer which has now grown into a fine bush and begins to flower in the middle of February, whereas the ordinary form delays till April. Moreover, the flowers on the early variety are showier than those of the other, and more thickly set on arching spikes. If some of the numerous species recently introduced from China develop on a similar scale, it will be a puzzle to find room for them.

My old friend, Dr. Augustine Henry, rendered good service to botany when he discovered the Rhododendron named after him—R. Augustinii. That was so long ago as 1885, and it was not till 1908 that Mr. Wilson brought seeds to this country. Among all the Rhododendrons that have arrived from Asia during the present century, there is none that I esteem more highly than a good form of this one. There are many forms of it inferior in colour—washy, slatey or ruddy; these should be relentlessly destroyed so soon as they show anything but periwinkle blue. Being of the Triflorum series, and growing very tall, it is impossible to pick off the seed vessels with a view to save the plant's strength for the following season; nor is there any occasion to do so, seeing that year after year it flowers with the utmost profusion. The best blue forms may be propagated from cuttings, which strike readily in gentle bottom heat.

R. adenogynum bids fair to rank high as a decorative species, for it carries well-shaped trusses of a luminous white that shines afar; while, viewed more closely, the effect is enhanced by the bright pink flower-stalks. Another merit is that it produces bloom when only a couple of feet high. *Herbert Maxwell, Monreith.*

NOTES FROM EDINBURGH.

The list of flowers grows apace, for the end of April is the real beginning of the flowering period in the rock garden. Lately there has been an absence of night frosts; some plants, however, have suffered slight damage and many fine blooms have been spoiled by cold, biting winds.

To the enthusiast who is ever on the look-out for something new, interesting and showy, the genus Rhododendron is worthy of consideration as many species are admirably suited to the rock garden, and to see these in flower for the first time is something to be remembered. The name Rhododendron suggests to many a shrub of large dimensions and entirely unsuitable for the rock garden, but although this, in many cases, is true, there are beautiful species which grow from a few inches high to those of a few feet in height.

The recently introduced dwarf species have brightened up the rock garden and added contrasting beauty to the innumerable subjects in flower at this season. On the slope of a high mound, R. prostratum is flowering beautifully. It is one of the very dwarf, creeping species, only a few inches high, and enjoys the assistance of some large stones to retain moisture about its roots. The bright, purple-red flowers are carried an inch or so above the glossy leaves, and although they droop slightly they are most attractive. It is a native of China.

Two other dwarf species, R. repens and R. nivale, are both early-flowering, the former being the gem among dwarf members of the family. Its large, dark crimson flowers attracted much attention during the end of March and the beginning of April. R. nivale is a native of the Himalayas and resembles a miniature R. ponticum, when in flower, with very small leaves. It flowered for the first time in this country in 1919, and since then has annually produced many tiny flowers at Edinburgh. R. calostrotum from North-east Upper Burma is from eight inches to a foot high. Of compact habit, with dark purple flowers resembling those of R. prostratum, it is especially beautiful. It grows best in part shade and enjoys moisture, with ample drainage. A group of R. impeditum, a native of Yunnan, is completely covered with small blue flowers. Planted thickly, it has formed a compact mass that is very conspicuous on a low mound above the moraine.

From the steps leading to the high mounds many specimens of R. fastigiatum may be seen. Its small blue flowers are so numerous that they almost cover the foliage. Many strikingly beautiful plants of R. cantabile are in full bloom, and the rich purple flowers, encircled by dark green foliage, make a very attractive display in a shaded bay. This Chinese species is one of the best of the family. Another species, R. russatum, is of great beauty. It is of slow growth with flowers which resemble those of R. cantabile and, in addition, the dark-green, glossy leaves make it worthy of being included as one of the best. Perhaps the most useful dwarf Rhododendron for large, showy masses is R. racemosum. A large group of this species is at present flowering profusely on a high mound facing south-west. From a distance it is very effective, and its floriferous branches covered with masses of pink, red-tipped flowers, are beautiful. The variety album is also very pretty and worth cultivating. Small plants of R. pycnocladum in flower commend themselves as beautiful members of this group; their dwarfness, small pink flowers and glossy leaves making them true rock garden plants. Very attractive also is R. oresbium from Yunnan and if afforded a moderately damp place it will give every satisfaction.

In contrast to those already mentioned, R. chryseum is one of the prettiest of yellow-flowering sorts. A charming group of this species is to be seen on the Erica mound, and is attractive by reason of its numerous yellow flowers. It is of dwarf, bushy habit and a native of the Tibet-Yunnan frontier. R. flavidum, a native of Szechuan, is noteworthy on account of its pale yellow flowers. Good specimens are now in full bloom and quite unique. Two taller species, R. hippophaeoides and R. scintillans, are useful for clothing large rock faces. They grow to a height of from two feet to three-and-a-half feet and are very pretty when in flower. The colour of the flowers varies from almost white to deep blue. R. rigidum may also be used for this purpose and is exceptionally pretty when showing its delicate, pink trusses.

At this season it will be interesting to watch the early-flowering of Primula vincaeflora and P. Farreri, mentioned in recent notes. By reason of their structure they are now regarded as members of the new genus Omphalogramma. They have expanded some beautiful flowers which do not seem to suffer any ill-effects from cold or morning frosts. P. chionantha, from Western China, has been flowering for three weeks. It is a graceful plant with creamy-white flowers borne on tall stems covered with golden meal. It thrives best in a damp situation and is not averse to being fed with well-decayed manure. Many plants of P. crispa, with slender stems of nodding, purple, flowers are much in evidence in a damp, shady situation. They produce an abundance of seeds which, if self-sown, germinate freely.

The beautiful P. erythrocarpa is also a shade- and moisture-loving plant valuable for its long flowering period, and should be included in every collection. P. melanops, from Yunnan, is not yet a common plant in gardens owing to the difficulty of obtaining seeds. The flowers are of a violet-purple colour, borne on an erect, mealy stem. The leaves are of a dark green shade, long, and tapering. This species likes a damp, well-drained situation. P. rosea and numerous other common species are at their best in the rock garden and by the pond side. On a very dry rock face a beautiful carpet, a yard square, of Armeria caespitosa, is very happy. Few leaves are visible on account of its hundreds of pale pink flowers.

Meconopsis integrifolia var. brevistyla and M. simplicifolia (Bailey's form) have taken advantage of the bright spells of Easter sunshine and a few individual plants have opened their first flowers. Gentiana verna, with its glorious blue flowers, is the only one of its family in full bloom. Bryanthus empetriformis, B. taxifolius, Trillium grandiflorum and the variety roseum, T. chloropetalum, Fritillaria Meleagris and the variety alba, F. pallidiflora and F. Imperialis are some other interesting subjects in full flower at this season. *A. McCutcheon.*

NOTES FROM WISLEY.

Of all the beautiful flowering fruit trees which decorate the Wisley Gardens at the present time, few can surpass the ornamental Crab Apples in the field garden. In addition to Pyrus floribunda and its deeper-coloured variety, atrosanguinea, there are some fine specimens of the deep rose-flowered Pyrus purpurea. Its blooms, unlike those of P. atrosanguinea, do not lose their colour as they age. Other deep pink-flowered Crabs include Pyrus Eleyi and P. Niedzwetzkyana. The habit of the latter, however, is rather coarse. Darkest of all is P. Oporto, with large blossoms of dull crimson. Along the broad walk to the wild garden several named varieties of P. spectabile are in flower in company with a very old tree of P. floribunda, and an equally fine specimen of the Double White Cherry (Prunus Avium fl. pl.), while between them is a smaller tree of the semi-double, pink-flowered, P. Cerasus Watereri. The ground beneath these trees is carpeted with drifts of Muscari, Primroses and double Cardamine, among which creeping plants, such as Claytonia sibirica and the yellow Viola scabriuscula are in bloom.

In the wild garden the Azaleas are about to burst into bloom and to join Rhododendrons, such as R. ciliatum and R. rubiginosum, which have now been in flower for some time. Plants of Trillium grandiflorum, Epimedium pinnatum and Anemones, such as A. apennina, A. blanda, A. nemorosa rosea, and A. n. purpurea, are also in flower in this part of the gardens, and it is interesting to record that Narcissus triandrus is increasing and is beginning to spread in many places almost as rapidly as N. cyclamineus has done.

The majority of Barberries are now in flower, and in addition to sterling sorts, such as Berberis stenophylla and B. Darwinii, which are grown chiefly on account of their flowers, there are several of the newer species which are by no means unattractive in bloom. One of the best is B. Bergmanniae, of which the specimen at Wisley, growing some eight or nine feet high, must be one of the largest in the country. The flowers are yellow and emit the strong and rather sickly scent which is peculiar to many Barberries and attracts large numbers of bumble-bees. Other species which are handsome in flower include the white-fruited B. pruinosa, B. Julianae, with pale primrose-yellow blooms, and B. verruculosa. The last should make an excellent hedge plant as it is fairly compact and has fine, evergreen foliage, against which the flowers show to advantage.

Many other beautiful shrubs are in flower such as Halesia tetraptera, the Snowdrop Tree, and the very spiny Aegle sepiaria upon which there is this year an unprecedented amount of white Orange blossom. One of the finest of all the white-flowered shrubs, however, is Exorchorda Geraldii. Its blooms are large and derive additional charm from the tender brown foliage. The flowering Currants in bloom include the Californian Fuchsia (Ribes speciosum), R. Lobbii, another Fuchsia-like plant, with pink petals surrounded by reflexed red sepals; and a recently introduced species (Farrer 947), with myriads of greenish-white flowers which, later, produce bright red berries.

Fragrance is provided by the flowers of Lonicera thibetica and L. syringantha, but equally sweet are the flowers of Viburnum Carlesii and a somewhat similar species, V. bitchuiense, which appears likely to exceed the former in vigour. Viburnum utile, another excellent shrub is also in bloom, but its flowers are almost scentless. Cydonia Sargentii is now one of the most arresting shrubs in the garden, while almost as conspicuous is the bright blood-red, C. Maulei atro-sanguinea. There are, in addition, some beautiful Cydonia seedlings in flower on the far side of the field garden pond, where C. cathayensis is in bloom. Its flowers are white, mingled with pink, but it is chiefly remarkable for its enormous fruits (see Supplementary Plate).

The most noteworthy plants in the Heath garden now are those of Erica australis, an extremely beautiful Heath which is blooming with the white-flowered E. arborea alpina and the Spanish Heath, E. lusitanica. Polygala Chamaebuxus, which commenced to bloom so early as February, continues to flower among the Heaths in company with the pink-flowered Andromeda polifolia and Phyllodoce (syns. Bryanthus, Menziesia) empetriformis.

In the alpine house Tulipa Kolpakowskyana is in bloom. It has grass-like leaves and its scarlet perianth rolls back as the flowers age. Ramondias are well to the fore in this house and are represented by a number of seedlings of R. pyrenaica which show considerable variation; by the four-petalled R. serbica and its beautiful variety, R. Nathaliae, the lavender flowers of which are in the form of a distinct cup and lack the orange centre seen in R. pyrenaica. Gentiana verna var. angulosa is also in flower. It does better than the type and its brilliant blue flowers contrast well with the clear yellow of such Buttercups as Ranunculus gramineus and R. millefoliatus. These and other bright-hued plants such as the not quite hardy Lithospermum oleaefolium, may cause one to overlook the more modest beauty of Calypso bulbosa (? borealis) a pink-flowered, hardy, terrestrial Orchid, or of Gypsophila cerastioides, whose white flowers are lined with purple. A pretty and fragrant dwarf shrub in this house is Daphne rupestris. Its variety grandiflora, which is free-flowering, and has larger flowers, is also in bloom. Other pretty plants in flower include Antirrhinum sempervirens, with cream-coloured blossoms, Linaria oreganifolia, the pink-flowered Oxalis oreganum and a number of Androsaces, such as the low-growing A. villosa, var. arachnoidea superba and A. Salmon's variety, which is one of the deepest pink-flowered varieties of this genus.

The banks of the rock garden pools are now overcrowded with flowers. Primula Juliae is blooming in large masses, while, half in the water, are flowering Caltha polypetala and C. palustris flore pleno. A beautiful white-flowered Marsh Marigold, C. leptosepala, is also in bloom. An effective colour combination is seen in a group of the mauve Primula denticulata, interspersed among plants of Ranunculus Ficaria alba, which has cream-coloured flowers. The double form of R. Ficaria is also here and flowering well.

Near the old alpine house is a trial of Aubrietias in which many varieties are making a good display. One of the brightest is Vindictive, with crimson flowers. The rich, purple blooms of Magician, of which the origin is doubtful, are also striking as are those of Prichard's A.1., Russell's Crimson and the mauve A. graeca. One or two varieties, as, for example, Lavender, do not appear to be very happy, and this is no doubt owing to the fact that they are being grown in the open ground on the flat instead of in a wall or rock crevice.

A trial of nearly seven hundred varieties of Gladioli has just been planted in the new trial grounds which have been made on the site of the old vegetable quarters.

Clematis Armandii is now flowering well on the laboratory wall, and among other interesting plants in flower in the border at the foot is Fritillaria lanceolata, with a dark purple perianth, mottled with greenish yellow. The bulb becomes covered with small bulbils on account of which this species is popularly known as the Rice-root Lily. *J. E. Grant White.*

APHYLLANTHES MONSPELIENSIS.

Aphyllanthes monspeliensis is at once a curious and a very pretty plant, suitable for the rock garden and the wall garden. It is by no means common in cultivation, but there are some very fine clumps of it on the rock garden at Kew, which have been growing there for many years and flower freely and regularly, year after year. In general aspect Aphyllanthes monspeliensis looks like a small, dainty tuft of Rush, with thin, wiry leaves six to nine inches long. When out of flower, it might be mistaken for a Rush, and when in flower suggests that the rush has suffered at the hands of a practical joker, for it looks as though someone had stuck blossoms of a Hyacinth or an Agapanthus on the tips of the "leaves."

The plant is a most charming sight when in full summer flower. The blossoms are about half-an-inch across; wide open, starry bells, of a clear, shining, powder-blue, very like rather wide-open Hyacinth flowers. The Rush-like "leaves" are not leaves at all, but stems. Anyone who does not know the plant, and had never seen it growing wild, or flourishing in a garden, as at Kew, might be misled by its Rush-like appearance into planting Aphyllanthes in a wet or boggy position. But this is far from what it likes. It requires a hot, well-drained, sunny position, for it is a native of the Mediterranean region. But it is perfectly hardy and quite easy to grow.

For some reason or other, however, it has always remained rather an uncommon plant in gardens. It does not seed very freely in cultivation, and although an easy, thrifty grower, it does not increase fast enough to allow of frequent propagation by division. Further, it does not grow wild in the popular track of plant collectors, amateur or professional, and visitors to the Mediterranean who might be gardeners, and therefore likely to get it, usually go there at a season when the Aphyllanthes is not in flower. I know few plants one would be less likely to locate when out of flower, unless it was well-known and one was definitely looking for it. The knowledge that it was plentiful on Mount Serrat was one reason which led me to visit that astonishing mountain on my way to Majorca, last February. Had I not known it was there and so been on the look out for it, I should quite likely have passed it over in spite of its extreme abundance. I came upon areas where it grew in thin, scrubby, grassy places, always in the most open, sunny exposures, and its splendid tussocks were there by the thousand on slopes which must be frightfully hot and parched in the summer months. The soil in which it grows is a stiff, reddish loam, and calcareous. The plants must have been a lovely sight when in flower, for they were covered with seed capsules (empty alas !), but which showed how freely they had blossomed. It was a good subject to collect, though the fine, strong roots had a firm hold on the stiff ground, and it was no easy work with pocket knives or ordinary little trowels to get them up. From the home of Aphyllanthes on Mount Serrat, one obtains a glorious view out across the plain below, to Barcelona and the Mediterranean. *Clarence Elliott, Stevenage.*

DEFOLIATION OF THE DOUGLAS FIR.

Until recently the Douglas Fir has been remarkably free from leaf diseases in this country and it is unfortunate that a fungus, Rhabdocline Pseudotsugae, which causes serious defoliation, has been recently introduced from North America.

This disease was first recorded from Montana, North America, in 1917, where it had been causing defoliation of the Douglas Fir since 1911. It was probably introduced into the south of Scotland in 1914, and since that time it has spread to a locality eight miles distant from the place where it was first discovered. Within the last month an outbreak of the disease has been found in Hampshire, and it is possible that, in this case, infection was derived from the original Scottish centre of the disease.

In North America the disease attacks both the green and the blue Douglas and also the intermediate form, but in this country it appears to be confined to the blue and the intermediate form. The typical blue or Colorado Douglas Fir (Pseudotsuga glauca) is distinguished from the green or Oregon Douglas Fir (Pseudotsuga Douglasii) by fairly well marked characters, but the intermediate form, often known in this country as the Fraser River variety, but more correctly referred to in America as the intermountain or dry belt form, appears to consist of a number of varieties which are intermediate in character between the green and blue species.

The name Pseudotsuga Douglasii var. caesia has been applied to one of these, but there is little doubt that several forms exist, possibly produced by hybridisation between the green and blue species. Up to the present in this country the typical green Douglas Fir has never been found attacked by the disease, but all trees possessing any trace of "blue" characters appear to be liable to infection.

Infection of the trees takes place about the middle of May. Usually only leaves of the current year are attacked, and these generally first show signs of the disease about the end of June. Purplish-brown patches appear on the leaves and the tree assumes a mottled appearance. In the blue Douglas Fir the discoloration does not generally extend over the whole of the leaf, but remains confined to one or more irregularly shaped areas, although in the intermediate forms the whole leaf usually becomes discoloured. A mycelium is developed in the leaf consisting of colourless, septate hyphae which do not pass back into the shoot. The cells of the infected area die, their contents become brown, and there is a marked decrease in starch content. About March, the hyphae become more abundant towards the lower surface of the leaf just below the two bands of stomata, and it is here that the fructifications are ultimately formed. Fructifications may also be produced on the upper surface, but this is unusual. Several apothecia or fructifications are usually formed on each leaf.

The leaves of the blue Douglas Fir generally bear more numerous fructifications, which produce a greater number of spores than those on the intermediate form; thus the blue Douglas Fir, although showing less leaf damage, is likely to prove a more serious source of infection than the intermediate form. The apothecia are brown, and elongated, at first covered by the epidermis, but later opening by a longitudinal slit disclosing an orange-coloured layer which consists of asci, containing ascospores and packing hyphae or paraphyses. The ascospores are eight in number, ovate-oblong or slightly dumb-bell shaped. When shot out of the ascus most of the spores are unicellular, and surrounded by a thick layer of mucilage, but they become two-celled before germination. Before this takes place one cell becomes dark-coloured and it is from this one that the germ-tube is developed.

The ascospores are mature in the middle of May and are shed just at the time when the buds are opening. The young leaves are infected at this stage, but the exact method of infection is unknown. In America a conidial type of fructification has been described which matures in the late summer, but this has not been found up to the present in this country.

Diseased leaves usually fall in July, about fourteen months after infection. Trees have occasionally been found in March in which the needles of the previous year show no infection, while those of the year before that, were diseased. In these cases either the infected needles have remained on the tree for two years or they have become infected during their second year, but both these conditions appear to be abnormal. In the Scottish locality where the disease was first found some trees were attacked in 1921 and in every succeeding year, and each year complete defoliation of the current year's leaves took place. Since the Douglas Fir usually retains its leaves for five or six years, most of these trees were completely defoliated by the early spring of 1926, except for the infected leaves of 1925. Many of these died in 1926 and the remainder will almost certainly die this year. Some of those which were first attacked in 1922 are also dead. The branch of an infected tree examined in the summer of 1925, showed that the leaves at the base of the shoot, produced in 1921, were not infected and were still retained; those of 1922, 1923 and 1924 were infected and had fallen; those of 1925 were nearly all infected. Examination of the diseased trees almost always shows that infection has taken place every year since the first attack, and has resulted in complete defoliation each year. Wherever this has taken place for three or more years the trees are either dead or in a very serious condition. A few trees have been found in which infection has not been constant each year, and these will probably recover if they are not again attacked. Generally, however, the disease shows no sign of becoming less active.

Accounts from the United States indicate that the course of the disease is fairly similar in that country, for it is stated there that trees that have been subject to the ravages of the fungus for several seasons are almost entirely defoliated, and either die, or rarely exist for an indefinite period, without making any perceptible growth. In Scotland, however, the disease appears to be more severe and more continuous than is usual in the United States. The one striking difference between the outbreaks in the two countries is that, while in the United States all forms of the Douglas Fir are liable to infection, in Britain only the blue and intermediate forms are attacked. This is strikingly shown in Scotland where trees of the green Douglas Fir, of which the branches interlace with those of blue Douglas Fir which are heavily infected, show no sign of the disease. This fact is of great importance for the green Douglas Fir is much more valuable as a forest tree than the blue; it is impossible to say, however, how long the former will retain its immunity in this country.

All the trees which have been attacked in this country have been from ten to fifteen years old, but it is stated that in America, trees up to thirty years old may become infected. The disease has not been found on seedlings in Great Britain, but in the United States it has caused considerable damage in forest nurseries.

In view of its very serious nature, the Forestry Commission is taking steps to stamp out the disease, wherever it is known to occur. In the case of the Hampshire outbreak, the proprietor has destroyed all the diseased trees and neighbouring susceptible trees have been sprayed with Bordeaux mixture. The spraying has been performed as a precautionary measure, as experiments carried out in nurseries in the United States have demonstrated the value of this treatment. In Scotland where much larger numbers of trees are infected, arrangements are being made for their complete destruction.

Information regarding the occurrence of the disease in any other localities is particularly desired, and it is requested that specimens of any trees believed to be infected should be sent, together with particulars as to locality, age, number of trees concerned, and any other details, to the Secretary of the Forestry Commission, 22, Grosvenor Gardens, London, S.W.1, for examination and report. *Malcolm Wilson, Consulting Mycologist to the Forestry Commission, University of Edinburgh.*

NOTICE OF BOOKS.

Viticulture.

In this country the supply of home-grown Grapes, for both domestic and commercial purposes, is produced almost entirely under glass, but on the Continent and also in such countries as California, Australia and South Africa, the cultivation of the vine out-of-doors is an important industry. The Grapes produced in these countries are used not only at table, but also for wine-making and for the production of Raisins, Sultanas and Currants. In the newer countries the term Viticulture is applied to the Grape-growing industry.

An exhaustive work* on this subject has recently appeared from the pen of Dr. A. I. Perold, Professor of Viticulture at the University of Stellenbosch, South Africa. It is intended primarily for the use of Grape-growers in California, Australia and South Africa, and every phase of the subject, from both a theoretical and practical point of view, is dealt with very thoroughly. Although the information regarding the practice of Grape-growing is not applicable to this country, the book contains much information regarding the Grape vine that should prove of interest and assistance to students of horticulture and others interested in this important fruit-yielding plant.

After a general introduction, in which the origin of modern viticulture is stated, there follows a chapter on the external and internal morphology of the vine which describes and figures every part of the vine plant in great detail. This is succeeded by a chapter on the biology of the vine, which similarly treats of every phase in the life of the vine from the germination of the seed to the ripening of the wood and the fall of the leaf.

Under the term "Ampelography" there are two chapters, one general and the other special, which treat of the classification of the various species of Vitis and give detailed descriptions with figures, of all the species and varieties in cultivation, together with particulars of their structure, characters, mutual relations, distributions, culture and value as cultivated plants.

The author classifies the cultivated vines into three groups: American species, European varieties and Direct or Self-producers, the last being vines growing on their own roots and producing either wine-making or table Grapes, such as was previously the case with European kinds before the appearance of the Phylloxera disease. Many of the new varieties known as Direct-producers are the outcome of crosses between the American and European vines, but the ideal Direct-producer, that is, a vine capable of producing good quality Grapes for eating and wine-making, and at the same time resisting diseases and pests when grown on its own roots has yet to be obtained. Of the varieties of European Grapes described in this book, twenty-two produce white wine, and thirty-two produce red wine; and of the table varieties there are twenty white, eight red and seventeen black, most varieties having a number of synonyms.

A special chapter is devoted to the propagation of the vine, and as most vineyards now consist of grafted vines, that is to say, varieties of Vitis vinifera grafted on to stocks of American species, propagation by grafting is the usual method adopted, except in the case of the Direct-producers, previously referred to, which are grown on their own roots. The layering of European varieties is now seldom practised as, on their own roots, they are liable to Phylloxera attacks. Three systems of grafting are described, namely (1) approach; (2) by means of a detached branch or scion, and (3) by budding. When a scion is used, either cleft, crown or tongue grafting may be employed. The grafting is either done on the spot in the open, or the callused cuttings are grafted at a table, the work being divided between a number of workers. If the grafted cuttings are planted out at once the scions are tied on to the stock, but if the union is to be effected first, the tying is omitted. The latter practice is a French method, the grafted cuttings being placed in a box lined with moss or sea-grass and kept in a warm and moist atmosphere until a callus has formed and the union of the scion and stock has been effected, when they are planted out in the open. The theory of grafting is dealt with in a special chapter in which the influence of grafting on the life of the vine is discussed.

At the Cape (South Africa) there are grafted vines thirty years old that are still doing well, but the average life of grafted vines is stated to be not much longer than twenty years. It is anticipated that this period may be extended to as long as fifty years when a fuller knowledge of grafting has been acquired, but it is doubted whether grafted vines (*i.e.*, European varieties grafted on to American stocks) will ever reach one hundred years or more, as did the ungrafted European vines before the Phylloxera disease devastated them. In the chapter on Vine Diseases, the term "disease" is defined as "a deviation from the plant's normal life which is harmful either to the object of the plant itself or to the object for which it is grown." Under this definition of disease are described not only fungous diseases and insect pests, but also physiological diseases caused by climatic and soil conditions. A full account of the Phylloxera disease is given, and the author states that, so far, the most generally applied and most satisfactory method of dealing with this pest is by grafting on American stocks.

---

* *A Treatise on Viticulture*, by A. I. Perold, B.A., Dr. Phil., Professor of Viticulture and Oenology at the University of Stellenbosch. pp. xi + 696, illus. London: Macmillan and Co., Ltd., 1927. Price 25/- net.

Under the heading "The Nutrition of the Vine," is discussed the theory and practice of manuring, as applied to vineyards.

The lengthy chapters above described occupy 508 of the 678 pages of reading matter, and the reader is then brought to the practical part of the treatise which deals with the establishment and soil cultivation of a vineyard, and with the summer and winter pruning and trellising of vines; the production of table Grapes and the preparation of various vine products, such as wine vinegar, syrups, unfermented Grape juice, and the drying of Grapes for making Raisins, Sultanas and Currants. The production of wine being a highly intricate business, is omitted and is left to be dealt with in separate text-books on the subject.

The book concludes with a lengthy bibliography of works consulted and quoted by the author, and there is a full index of the species and varieties of vines mentioned, as well as a general index. The illustrations are numerous and have been carefully selected to illustrate the text. This work will no doubt become a standard book of reference in those countries where the growing of Grapes out-of-doors is possible, and it should also prove a valuable addition to any horticultural library. *H. Spooner.*

A "NEW" VEGETABLE, A "NEW" SALAD AND A "NEW" FRUIT.

The Vegetable.

Just as a "novelty" frequently has a certain antiquity, even in a seedsman's catalogue, this is none other than our old friend the Broad Bean. In Majorca lately, I had these served after the manner of the Mangetout, that is to say, whole pod and its contents; I had them in omelettes, in the making of which the Spanish cook is perhaps hard to beat; also plain boiled as a vegetable dish and as an ingredient in excellent stews, *arroz dos pobres*, Valenciana, etc.

Naturally, the pods were picked in a comparatively young state and were about four inches long and as thick as one's little finger, or rather more; size, however, would depend upon variety. The Bean grown there is comparatively dwarf and small and is a very important crop, judging by the hundreds of acres of it one sees about the island.

An important enemy of this crop is the giant Orobanche, which, according to accounts, wipes out whole fields in Southern Spain, but I only once saw a pile of this parasite which had been cleared off a field. The "black Dolphin" (Aphis rumicis) I only saw in scanty numbers in one place; it would not seem to be widely spread as a damaging pest.

The Broad Bean as a Mangetout may be commended for trial.

The Salad.

When in the South-west of France, decision was asked whether we would prefer our Artichokes "raw or cooked"; departing from my usual habit of trying anything novel, and thinking that the uncooked would be rather hard nuts to crack, the reply *cuits* was given. However, out of some dozen-and-a-half diners, only ourselves and two others favoured the cooked ones, four in all; by the others they were eaten with evident zest. The "leaves" came off resoundingly and formed good spoons to ladle up copious dressings of oil, vinegar and chopped herbs; they were too young for "choke" to have developed, though of good size.

I may add that in Majorcan stews the young heads are frequently simply cut in four pieces and mixed in; occasionally a toughish bit of "leaf" meets the teeth, but in general the whole may be eaten satisfactorily.

Naturally, a good variety should be used; those from seedlings I have raised often partake of a Cardoon-like quality and are very hard when young. I have found that the heads produced by offsets taken in the spring, and which are growing rapidly, produce very tender heads towards autumn. It may be noted that in Majorca, where the cultivation of the plant is extensive, it is practically always grown close to the terracing wall of stones, where, during the summer, it must have a maximum of ground heat and a minimum of moisture.

The Fruit.

This will appeal solely to the lovers of the Medlar and is, in fact, the fruit of the hard, highly-astringent, late-season Perry Pear—The Rock Pear—which has been allowed to blet. In this condition it has about the same texture as the Medlar, but the flavour is quite different and characteristic, at the same time, indescribable. It would be in season in January or, perhaps, February.

The Rock Pear, by tradition, should not be used in the year it is produced, nor should its perry be drunk in the year it is made. Round the Newent region it is known as the Brown Huffcap, or simply sometimes as The Huffcap. Some years ago, apparently, some distributing nurseryman rechristened it as Burgundy, under which name it is met with on some farms. It forms a round-headed tree of no great height. Hogg and Bull described it erroneously as having an upright habit, they also alleged that the original tree existed at Cromer Pit Farm, Pendock, but this tree hardly looks so old as some that may be seen. *H. E. Durham.*

VEGETABLE GARDEN.

KALES.

Seeds of these most useful spring greens may be sown about the end of April or early in May in a fairly open situation. Stir the soil with a fork to obtain a fine tilth, then draw drills about six inches wide and two inches deep, leaving a ridge of fine soil near each for filling the trench when the seeds are sown. The drills should be about six feet long; the soil at the base should be firm and made level with a small, iron rake. Sow the seeds thinly, one drill or more of each sort as required, and cover them with fine soil to the depth of about an inch. If the soil is dry water it freely. Place a label to each variety. To guard against birds, insert short sticks down each side of the rows and a few down the middle to carry an old fish net.

The seedlings will soon appear, and if the ground has become caked, stir it between the plants with a pointed stick.

Kales are usually drawn from the seed-bed and planted direct in their permanent quarters, therefore the importance of sowing thinly needs no emphasising. Unless the grower has plenty of ground at his command, it is often a problem to find a suitable place for Kales as they need firm, not over rich soil to enable them to withstand the winter. An excellent place is between rows of Peas, especially if the latter are growing north to south. The partial shade is beneficial to the young plants in giving them a good start, but the Peas should be cleared off so soon as they have finished cropping to allow the Kales to obtain plenty of sunlight and air. As the ground between the Peas will naturally be firm, a line should be stretched from end to end and holes made with a small iron crowbar. Place one plant in each hole, taking care that the roots touch the bottom. Water them, and fill the hole with soil. The plants will soon begin to grow, and the surface soil should be kept continually hoed to keep down weeds.

After the rows of Peas are cleared away, it is a good plan to fork the ground lightly, as this not only ensures a neat appearance but allows sun and air to reach the roots. The plants will thus be enabled to make strong, sturdy growth, which is necessary to enable them to survive severe weather in winter. Allow at least a yard between the rows and almost as much between each plant in the rows. By planting them well apart they will be far more likely to withstand severe weather, but, above all, select an open, sunny situation. It may be necessary to stake the plants in exposed sites, more especially the tall-growing, Scotch type; indeed, all Kales produce better crops if they are kept growing upright and not allowed to fall about untidily. Another good place in which to grow this crop is where an old Strawberry bed has been cleared. The soil where Strawberries have been grown is usually in good heart and also firm, and when the Kales are finished the ground will be vacant at an early date for trenching or digging.

Certain varieties of Kales are not quite so hardy as others, and the tender sorts should be given the most favourable position. The tall Scotch Curled, for instance, should be considered in this respect and planted in as sheltered a position as possible, and also on ground that is well-drained. In certain districts, this Kale dies from some cause unknown; it may be from stagnant moisture at the roots, but let no one be deterred from planting it for that reason, as it is one of the best of Kales and very productive.

Perhaps the hardiest of all is the Russian Kale, with greyish-green, finely-cut foliage; it is certainly one of the best sorts from a table point of view. The Labrador Kale is also very hardy, a strong-grower and of splendid flavour. Other varieties include the Cottagers' Kale, Asparagus Kale and the Purple and White Sprouting Kales; the two last give a tremendous quantity of produce, if well-grown. Whichever types of Kale are selected, they are always much appreciated, as Kales come into use just when Brussels Sprouts are getting past their best. It is better to grow a row or two of each than too many of one kind as some are perhaps earlier than others. In any case, the object should always be to produce strong, sturdy plants before the winter sets in, rather than large, overgrown specimens, and this is only possible if the plants are put out at the right time in good, firm ground. *R. W. Thatcher, Carlton Park Gardens, Market Harborough.*

HOME CORRESPONDENCE.

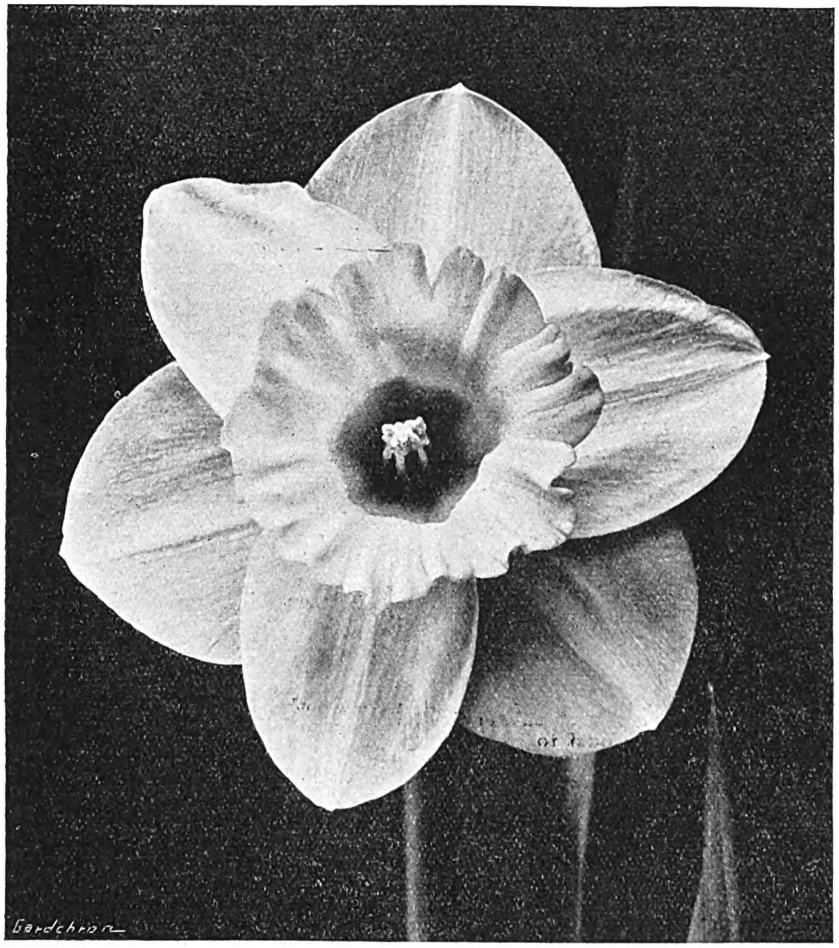
Aphis on Viburnum Carlesii.—Referring to Sir Herbert Maxwell's enquiry regarding aphis on Viburnum Carlesii, I had some young bushes badly attacked two or three years ago, and I did not discover the trouble until the bushes were smothered with aphis. I sprayed them, but as the foliage was curled up, it was difficult to get at the pest effectively. Growth was much crippled, but the plants grew away later in the summer and appeared to be free. However, the following spring the attack was just as bad, and after two or three sprayings I cleaned the plants and no more aphides were seen that summer. I had several dozen bushes growing elsewhere in thin woodland, and these had no sign of aphis on any of them. The plants that were attacked were growing in full sun. Believing that these Viburnums in most cases are woodland plants, I gave them slight overhead shade with excellent results; whether this has had anything to do with the plants not being attacked by aphis or not, I cannot state, but since I moved the plants from full sun to slight shade I have not been troubled with aphis. As aphides cause the leaves to curl up a good deal, ordinary spraying will hardly reach the pests, and if the bushes are not too big, sponging would be more effective, although a much larger job. Every year I confirm my opinion that Viburnum Carlesii is one of the very best of shrubs and had I to grow only one shrub, I feel sure my choice would fall on this. It is now at its best here, and the whole air is full of its delicious scent. *G. H. Dalrymple, Bartley.*

Branching Broccoli.—The variety Nine Star referred to in your report of the Fruit and Vegetable Committee, on page 310, is stated by Mr. Beckett, in *Vegetables for Home and Exhibition*, to have been raised by a nurseryman at Halstead, Essex, and Beckett states there are good grounds for assuming it to be the result of a cross between a "sprouting" and a "heading" variety; also that it appears to be as perennial as the Perennial Kale. *G. F.*

SOCIETIES.

MIDLAND DAFFODIL.

April 21 and 22.—This Society's two-day exhibition, held at the Botanical Gardens, Edgbaston, in beautiful weather, was a pronounced success, and attracted a bigger attendance of visitors than usual. The most successful competitor was Mr. Guy L. Wilson, of Broughshane, and this year may be called "Wilson's Year," as he was awarded one First Class Certificate and four Awards of Merit for new seedlings, as well as seven first prizes, three Challenge Cups, one Trophy, and three Medals, which must surely be a record for any Daffodil exhibitor at one show. This enthusiastic raiser of seedlings has introduced several very good varieties into commerce, and judging from what one saw on his stand at Birmingham, the number of choice varieties is likely soon to be increased. Another Irish firm which met with much success on this occasion was The Donard Nursery Co.; Mr. F. H. Chapman, of Rye, who is always to the fore at big Daffodil gatherings, was another conspicuous exhibitor.



[FIG. 157.—NARCISSUS HOPEFUL.

First-Class Certificate, Midland Daffodil Society, April 21.

Shown by Mr. Guy L. Wilson (see Awards).

At the Annual General Meeting, held on the first day of the show, the gratifying announcement was made that the Society's finances are in a very satisfactory and progressive condition. All the officers were re-elected and additions made to the Floral Committee. Mr. Henry Backhouse (Past President) who presided, referred in feeling terms to the very great loss the Society had sustained by the deaths of the Rev. Joseph Jacob, M.A., and Dr. N. Y. Lower. For many years, Mr. Jacob filled the office of Co-Hon. Secretary, and later was Chairman, and finally President of the Society. It is largely due to his untiring efforts, persevering industry and genuine old English courtesy that much of the success attained by the Society is due. His genial presence will be greatly missed, but it is up to those left behind to see that the Society is kept in the forefront of the Daffodil world. Year after year, the late Dr. Lower, also a Past President, brought his choicest seedlings to Birmingham, and by so doing helped to build up and maintain the Society he had so much at heart.

First Class Certificate.

Narcissus Mitylene (see *Gard. Chron.*, April 10, 1926. Fig. 129).—A charming Leedsii variety with a broad, substantial perianth and a large, cream-coloured crown. Shown by Mr. Guy L. Wilson, Broughshane.

Awards of Merit.

Narcissus Hopeful (Fig. 157).—A handsome, deep yellow, giant Incomparabilis variety. Shown by Mr. Guy L. Wilson.

Narcissus Flava.—Another deep yellow Incomparabilis flower of good form and substance. Shown by Mr. Guy L. Wilson.

Narcissus His Excellency.—A large, rich, self-yellow Trumpet variety. Shown by Mr. Guy L. Wilson.

Narcissus Queen of Ulster.—A beautiful variety with a broad, white perianth and a pale sulphur-yellow trumpet. Shown by Mr. Guy L. Wilson.

Narcissus Peggy Briscoe.—This is an Incomparabilis variety with a soft, canary-yellow perianth and orange-coloured cup. Shown by Mr. W. A. Watts, St. Asaph.

Narcissus Simple.—A shapely Leedsii flower with a broad, white perianth and small, pale yellow crown. Shown by Mr. W. A. Watts.

Narcissus Snowsprite.—A handsome, double-white flower of medium size, stained with yellow in the centre. Shown by Messrs. Barr and Sons, Covent Garden.

Narcissus Dactyl.—A pleasing Poeticus variety with a pure white perianth and a large, flat, greenish centre, frilled with orange-red. Shown by Mr. J. Lionel Richardson, Waterford.

Narcissus Ditty.—Another Poeticus variety, with a broad, pure white perianth and a rich orange eye. Shown by Mr. F. H. Chapman, Rye.

Narcissus Silver Rose.—Flowers double, very delicate cream-white, with a cream-yellow centre. Shown by Mr. W. F. M. Copeland, Southampton.

Open Classes.

In the class for a collection of thirty-six varieties representing the different types of Daffodils there were three exhibits against five on the last occasion, which was in 1925, there being no show last year on account of the long spell of hot weather in early April. The schedule required three flowers of each variety. The first prize was awarded to The Donard Nursery Co., Newcastle, Co. Down, whose flowers were remarkable for good form, freshness and purity of colour; among the most noteworthy varieties were Water Lily, White Knight, Rosary, White Wax, Herod, Blizzard, Ace of Diamonds, Festive, Sonata, Hot Spot, Mystic, Sunstar, Mitylene, Firetail, Nannie Nunn, Buttercup, Warsprite, Puck, and Taranto; second, Mr. J. S. Arkwright, Presteign; with a handsome set of flowers which included excellent specimens of Robur, A.42, Silver Salver, Iliad, Kiaora, Ringdove, Pedestal, Ivorine, Croesus, Crucible, Robin Redbreast Donax and Kestral; third, Mr. F. H. Chapman Rye, who showed attractive blooms of White Knight, Ring o'Roses, Harpagon, Helles, Rosary and a number of very promising unnamed seedlings.

In the class for twelve varieties of three stems each of yellow, white and bicolor Trumpets, Mr. Guy L. Wilson, Broughshane, Co. Antrim, won first prize with large, shapely, well-coloured flowers of Honey Boy, Carmel, His Excellency, White Emperor, King of the North, Beersheba, 15/28, Queen of Ulster, Sorley Boy, B.192, White Grenadier and Countess of Antrim. second, Donard Nursery Co., with splendid blooms of Carmel, Gorgeous, White Knight, Lady Primrose and Cleopatra; third, Mr. J. E. Exley, Leeds.

The winning exhibit of six varieties of yellow Trumpets also came from Mr. Guy L. Wilson, who staged delightfully fresh specimens of Honey Boy, 10/51, Sorley Boy, His Excellency, 12/8, and 5/19; second, Mr. F. H. Chapman, with Golden Flag, Bravo, Rheingold and three unnamed seedlings; third, Mr. J. E. Exley.

The best of four exhibits of six varieties of white Trumpets was sent by Mr. Guy L. Wilson, who had uncommonly good blooms of White Conqueror, Eskimo, Kenbane, Beersheba, 12/29, and B.1923; second, Donard Nursery Co., with first-rate blooms of White Knight, Sybil Foster, Seedling b.b., White Wax, Mrs. Krelage, and seedling 136; third, Mr. F. H. Chapman.

Mr. Guy L. Wilson was again successful in the class for six bicolor Trumpets with large blooms of Queen of Ulster, Carmel, Jack Spratt, Honour, 13/30 and 136/a/14; second, Donard Nursery Co.; third, Rev. T. Buncombe, Black Torrington, Devon.

Included in the Incomparabilis classes were some extraordinarily beautiful flowers. The best six yellow-perianth varieties from Mr. Guy L. Wilson were greatly admired. He showed Pilgrimage, Flava, Hopeful, Copper Bowl, Osiris and 14/29; the second prize was won by Donard Nursery Co., who had Tace, Leontes, Donax, Noble, Epaulier and Pilgrim Father; third, Rev. T. Buncombe.

The winner of the first prize for the best half-dozen white Incomparabilis varieties was Mr. F. H. Chapman, who had superb flowers of Taranto and five unnamed seedlings; second, Rev. T. Buncombe, with very good Chryseis and Princess Badura; third, Donard Nursery Co., whose set included a beautiful vase of Warsprite. Mr. Chapman again excelled in a class for white-perianth Barrii varieties, with choice examples of Trenarth, Firetail, Morocco and three seedlings. Mr. J. Lionel Richardson, Waterford, was second with exquisite flowers of Firetail and Dive-in-the-Dark; third, Rev. T. Buncombe.

The best of five exhibits in a class for six large-crowned Leedsii varieties came from Mr. Guy L. Wilson, who showed handsome blooms of Hymettus, Suda, Ettrick, Snowdrift, Riva and Tenedos. The Donard Nursery Co. was second, and Mr. F. H. Chapman, third.

Mr. Guy L. Wilson also led in the next class for small-crowned Leedsii varieties with exquisite, specimens of Fairy Circle, Distingue, Alburnia, Hypatia, Silver Plane and Hera; second, Mr. F. H. Chapman; third, Donard Nursery Co.

The best set of six Triandrus hybrids was contributed by Mr. W. F. M. Copeland, Southampton, with unnamed seedlings; second, Mr. W. B. Cranfield, Enfield.

The class reserved for six Poeticus varieties was a splendid one. First, Donard Nursery Co., with fine flowers of Sonata, Thetis, Ace of Diamonds, Snow King, Ring Dove and 1/24; second, Mr. F. H. Chapman, who had Raeburn, Ditty, Minuet and three seedlings; third, Mr. J. Lionel Richardson.

Single Bloom Classes.

For a yellow Trumpet variety, Mr. J. S. Arkwright was first with a big, refined, canary-yellow, unnamed seedling, A.437; second, Mr. W. B. Cranfield, with a beautiful specimen of Brimstone. In a class for a white Trumpet flower, Rev. R. Strawbridge, Broughshane, excelled with a magnificent bloom of Beersheba; second, Mr. H. Smith, Birmingham, with White Empress.

The Donard Nursery Co. won first prize in the class for a yellow-perianth Incomparabilis with R. I. Mr. E. H. G. Thurston, Chandlersford, with 112, XXIII, 18 was second. The winning flower in the class for a white-perianth Incomparabilis was Olwen, exhibited by Mr. W. A. Watts, St. Asaph. Mr. E. H. G. Thurston was second, with 98XXII.18. Flowers of Seraglio, in the yellow-perianth Barrii class, secured first and second prizes for Mr. J. Lionel Richardson and Mr. H. J. Morris, Penryn, in the order named. The last-named exhibitor excelled in the white-perianth Barrii class with a perfect bloom of Sacrifice, The Donard Nursery Co. being second with Sunstar. The last-named exhibitors were first in the large-crowned Leedsii class with a very choice bloom of Mitylene, and Mr. John Priest, Old Hill, Staffs., was second with the same variety. The Donard Nursery Co. also led in the class for a small-crowned Leedsii with Sumaria. Mrs. H. L. M. Morris, Penryn, was second with St. Ilario. The Donard Nursery Co. had the best triandrus hybrid in a beautiful flower of Venetia; second, Mr. W. F. M. Copeland, with 1058.

The winning exhibit in the class for a Cyclamineus hybrid was a dainty flower, No. 7. vi. 23, exhibited by Mr. E. H. G. Thurston; second, Mr. W. F. M. Copeland, with Flycap. For a Jonquilla hybrid, the Rev. T. Buncombe was placed first, with a pleasing specimen of Buttercup, and Mr. A. H. Bassano, Old Hill, Staffs., was second, with the same variety. Peerless was the best flower in the Tazetta or Tazetta hybrid class, shown by Mr. W. A. Watts.

For a true Poeticus variety, Mrs. H. L. Morris was to the fore with an exquisite flower of Snow King. Mr. H. J. Morris was second with Dulcimer. The Donard Nursery Co. had the best double-flowered variety with No. 60, Mr. W. A. Watts being second with B. 78.

Seedlings and New Varieties.

The much coveted Bourne Challenge Cup offered for twelve varieties, one stem of each, raised by the exhibitor, was won by Mr. Guy L. Wilson, with high quality blooms of Flava, Mary Malony, Hopeful, Buff Barrii, Queen of Ulster and seven unnamed seedlings. In Mr. Chapman's second prize collection were charming examples of Mizapore, Ditty, Confetti and unnamed seedlings of great promise. The winning set of six varieties, raised by the exhibitor, came from Mr. J. S. Arkwright, who showed choice, unnamed varieties. Sir Charles H. Cave, Bart., Sidmouth, who secured second prize, had a charming flower of Beethoven; third, Rev. T. Buncombe.

For three varieties, same conditions as in the last class, Mr. W. F. M. Copeland excelled with exquisite specimens of Silver Rose, Marcella and 1383; the second prize went to Miss Pope, Kings Norton, and the third to Mr. E. H. G. Thurston. In a companion class to the last one, but open only to those who have never won a prize for seedlings (single bloom classes excepted), Mr. J. S. Arkwright beat Mrs. E. V. Butler, of Tewkesbury, and Mr. B. Robinson, respectively. The Cartwright Challenge Cup, offered for twelve varieties of Daffodils, was awarded to The Donard Nursery Co., whose collection included grand, well-set-up flowers of Brimstone, Hexagon, Eucharis, Samaria, Ace of Diamonds, Mitylene, Sunstar and Ringdove. Mr. Guy L. Wilson was a good second with Nissa, Osiris, Mitylene, Carmel, Gaza and Rosary, in splendid condition; third, Mr. W. A. Watts. For six varieties, Mr. H. J. Morris beat the Rev. T. Buncombe with excellent blooms of Samaria, Sacrifice, Caedmon, Silver Chimes and Mowgh. The Rev. T. Buncombe's best flower was Wheel of Fortune.

The Walter Ware Challenge Cup for six obvious Triandrus seedlings, one stem of each, was won by Mr. W. B. Cranfield, who had handsome flowers of Maid Monica, Wavelet, Venetia, Harvest Moon, White Coral and an unnamed seedling; second, Mr. W. F. M. Copeland, third, Mr. W. A. Watts.

The White Daffodil Trophy was offered for six varieties of white Trumpet Daffodils, and of the nine contestants, Mr. Guy L. Wilson was again the successful exhibitor with large flowers of superior merit; second, Donard Nursery Co.; third, Mr. J. E. Exley.

The Leamington Challenge Cup, offered for six varieties of Daffodils with red coronas, attracted five contestants. Mr. W. A. Watts was the winner, with Peggy Briscoe, Curtain, Domino, B. 126, B. 129 and B. 67; second, Mr. M. J. Lionel Richardson, whose best flowers were Kilcroney, King of Clubs and Coronach; third, Donard Nursry Co.

The Arkwright Challenge Cup, offered for six bicolor Trumpet Daffodils, was awarded to Mr. Guy L. Wilson, whose flowers of Jack Spratt, Honour, Tapin and three unnamed seedlings, were particularly good. The best specimens in The Donard Nursery Co.'s second prize set were Carmel and Lady Primrose; third, Mr. F. H. Chapman.

The Williams Challenge Cup, offered for six varieties of yellow shades, but without red colouring in the cup, was won by the redoubtable Mr. Guy L. Wilson with Hopeful, Flava and four unnamed varieties; second, Donard Nursery Co., whose best examples were Roundle, Gorgeous and Cleopatra; third, Mr. J. S. Arkwright.

Amateur Classes.

In the class for a representative collection of twenty-four varieties of Daffodils, three stems of each, Mrs. E. V. Butler had a "walk-over," with a nice, clean set of flowers in which the following varieties were meritorious, viz., Virgilia, Snow King, Firetail, Nannie Nunn, Lord Kitchener, Cassandra and Cornelia.

For six varieties of yellow, white and bicolor Trumpet Daffodils, three stems of each, Mr. A. H. Bassano, Old Hill, just managed to beat Mr. R. Robinson, Spilsby; third, Mrs. E. V. Butler.

Mr. B. Robinson won first prizes for (1) six Incomparabilis varieties, and (2) six Leedsii varieties; and Mrs. Butler excelled in classes for (1) six Barrii varieties, (2) three Tazetta varieties; and (3) three Poeticus varieties. Mr. H. A. Marrimer, Billingshurst, won the Silver Vase offered by Messrs. Cartwright and Goodwin for six varieties of Daffodils.

In a class for a bowl of Daffodils, Mr. J. S. Arkwright was awarded first prize, Miss Pope, the second, and Mr. W. A. Watts, the third prize.

Medal Awards.

The Birmingham Botanical and Horticultural Society's Medals were awarded as follow:—Classes 1 to 29: Silver Medal to The Donard Nursery Co., with 112 points; Bronze Medal to Mr. F. H. Chapman with seventy-five points; Classes 15 to 29 and 30 to 41: Silver Medal to The Donard Nursery Co. with sixty-eightpoints. Bronze Medal to Mr. Guy L. Wilson, with fifty-four points. Classes 15 to 29 and 43 to 56: Silver Medal to Mr. H. A. Marrimer, with forty-five points; Bronze Medal to Mr. B. Robinson, with forty-four points.

Honorary Exhibits.

Gold Medals were awarded to Messrs. Barr and Sons, for a comprehensive collection of beautifully fresh, well-set-up Daffodils, of which Snowsprite, White Sentinel, Red Gauntlet, Royal Lady, Mitylene, Ringdove, Beersheba, Peter Barr and Brunhilde were of outstanding merit and to The Donard Nursery Co., for a large group containing many of the best varieties of the present-day Daffodils.

Silver-Gilt Medals were awarded to Mr. Guy L. Wilson for a choice collection of Daffodils, in which were many popular varieties of the exhibitor's own raising, together with a number of seedlings not yet in commerce; to Mr. W. F. M. Copeland, Southampton, for a collection of Daffodils, in which double-flowered varieties predominated; to Mr. W. A. Watts, St. Asaph, for a decorative arrangement of Daffodils; the varieties Peggy Briscoe, Simple, Twinkle, Domino, Curlew, Charter and many others were very attractive; to Messrs. Hewitt, Solihull, for a group of Daffodils arranged in bold masses; to Messrs. Cartwright and Goodwin, Kidderminster, for a group of Daffodils in which many of the best varieties were represented; to Mr. Herbert J. Longford, Abingdon, for Daffodils and Tulips; and to Mr. N. Zandberger, Rijnsburg, for a large and beautiful collection of big, strong-stemmed Tulips.

A Silver Medal was awarded to Messrs. Bakers, Wolverhampton, for hardy flowering shrubs and herbaceous flowers.

A Bronze Medal was awarded to Messrs. Sheppards, Hollywood, for a small collection of daintily arranged rock garden plants.

RHODODENDRON.

May 3 and 4.—The second show of the Rhododendron Society exceeded anticipations in every respect. During the previous fortnight frosts had been fairly general, with serious effects on many plants throughout the country, but, fortunately, sufficient trusses escaped to make an exceedingly interesting display. Most of the sixty-two classes were well-filled, and it was interesting to note that, while most of the species and varieties were of what are generally considered to be somewhat tender Rhododendrons, the greatest successes were obtained from Bodnant, the most northern garden that was represented at the show. Lady Aberconway won a handsome Silver Challenge Cup, twelve first and several second prizes, and also the special prize offered for the best hybrid Rhododendron in the show, with Betty, the lovely hybrid between R. Fortunei and R. Thomsonii. The best species in the show was a good truss of R. Nuttallii, shown by Mr. G. W. E. Loder.

We were pleased to note a marked improvement in the arrangement of most of the collections, though a few lacked finish. The group of species of the Lapponicum series, from the Chinese Alps, which was shown by the Society in a sandstone rock garden to illustrate the value of these species for the rock garden and general garden purposes was admirable in its inception, and Mr. J. B. Stevenson who, we believe, was responsible, is to be congratulated on its great success.

Section B of the Floral Committee of the Royal Horticultural Society met during the morning of the first day and made awards to novelties.

Floral Committee.

Present: Section B.—Mr. Gerald Loder (in the chair)) Mr. R. W. Wallace, Mr. T. Hay, the Hon. Henry MacLaren, Mr. J. C. Lucas, Mr. A. Bedford, Mr. F. G. Preston, Mr. George Harrow, Mr. G. Reuthe, Mr. E. H. Wilding, Mr. R. C. Notcutt, Mr. W. J. Bean, Mr. W. G. Baker, Mr. C. Williams, Mr. E. A. Bowles, Mr. Hiatt C. Baker, Mr. Reginald Cory, Mr. L. R. Russell, Sir William Lawrence, Bt., and Mr. N. K. Gould, Secretary.

Awards of Merit.

Rhododendron russatum.—A twiggy, low-growing shrub, discovered by Forest in North-west Yunnan, in 1917, at an altitude of 12,000 feet. The leaves are scarcely two inches long and half-an-inch wide, pitted on both surfaces with little dots. The small flowers are borne, four or five together, in little trusses, at the ends of the growths, and are of a deep, rich, purplish blue. Shown by A. N. Williams, Esq. (gr. Mr. R. M. Gregory), Werrington Park, Launceston.

Rhododendron Betty.—This handsome, large-flowered hybrid is the result of crossing R. Fortunei with R. Thomsonii, and was raised by Sir Edmund Loder. The widely-expanded flowers are of a lovely deep pink shade, somewhat paler in the centre, and the truss shown carried eleven splendid blooms. Shown by Lady Aberconway and the Hon. H. D. McLaren (gr. Mr. F. C. Puddle), Bodnant, Tal-y-Cafn, North Wales.

Arbutus furiens.—A Chilean plant that appears to be hardy only in the warmer parts of southern England and the south of Ireland. It is an erect-growing shrub with rough, stiff, tough and bristly ovate leaves from the axils of which the little hirsute racemes extend, from one to two inches in length. The small, pendent, pitcher-shaped flowers are porcelain white and set very closely on the stem, so many as a dozen or sixteen being crowded in one raceme. Gaultheria furiens is a synonym of Arbutus furiens. Shown by Mr. G. Reuthe.

Cassiope Mertensiana.—This delightful little plant is a native of California, and the American Pacific coast. It grows about six inches high and its synonym of Andromeda cupressina suggests, by its specific title, the manner in which the small leaves clothe the erect stems. The pure white, pendant flowers, like little fairy bells, are reminiscent of those of Lily-of-the-Valley, but each flower has a tiny green calyx. This species is a somewhat rare plant, and if sufficiently hardy, merits wider cultivation by those who can successfully manage Ericaceous subjects. Shown by Mr. G. Reuthe.

Groups of Rhododendrons.

There were six classes for groups of Rhododendrons, and these were equally divided between traders and amateurs. As was to be expected, the trade groups were the larger, but the principal amateur collections were arranged with more taste and skill and were exceedingly effective.

The best trade group of Rhododendron plants was set up by Messrs. R. Gill and Son, and this imposing display contained a great variety of interesting species and hybrids. The chief sorts in flower were Rhododendrons Lindleyi, caloxanthum, Edgworthii, burmanicum, Dalhousiae, album, Nuttallii, orbiculare, glaucum and Pink Pearl. A selection of plants not in flower well illustrated the foliar beauty of many species. There were the exceedingly handsome leaves of R. giganteum, R. sino-grande and R. auriculatum, and the smaller, woolly foliage of R. spectabile and R. lanatum.

The second prize group of Messrs. Wallace and Co., Ltd., was composed chiefly of the hardier hybrids, and its colour value was great. They had well-flowered standards of Britannia, King George, W. F. Wery, Noreen Beamish and other sorts, bearing large trusses of brilliantly coloured flowers, rising above the bright pink blooms of Hugo de Vries and Alice, the softer shades of Corry Koster, Mauve Queen and Smithii aureum. In their good third prize collection, Messrs. Waterer, Sons and Crisp had vivid trusses of Doncaster, Earl of Athlone, Bagshot Ruby and Michael Waterer in harmony with Prince of Wales, Pink Pearl, White Pearl, the beautiful blush pink Mrs. C. E. Stirling, Sweet Simplicity, with blush-pink margins to the petals, and the smaller, blue-coloured species R. Augustinii. Messrs. J. Cheal and Sons were fourth in this important class, and they included good plants of Gomer Waterer, Fred Waterer and Alice.

The groups of Azalea plants, by trade exhibitors, made pretty displays. Messrs. R. G. Cuthbert were first, and they had glowing masses of Elizabeth and Brilliant, two very fine mollis varieties, Dazzle, Apple Blossom, Minoru and Peggy O'Neil, hybrids of mollis and sinensis, and several of the useful Azalea rustica varieties. Messrs. Stewart and Son were second, and they included floriferous plants of Feodora and Betty, hybrids between A. malvatica and A. Kaempferi, and Brilliant.

The class for a trade group of cut Rhododendrons was not so satisfactorory as the others. Messrs. M. Koster and Sons were awarded the first prize for a small collection of hybrids, and Messrs. R. Gill and Son were placed second with a larger collection of good blooms which would have been interesting had the sorts been named.

Several trade collections, not for competition, were of conisderable merit. In a corner space by the Tea Annexe, Messrs. R. Veitch and Son had a very pretty group of Loder's White, Standishii, large white flowers with carmine-spots, Mrs. Thiselton Dyer, of beautiful deep rose-pink colour, Sesterianum, a large white variety, the beautiful white Veitchianum, and the following Kurume Azaleas—Moniji, salmon, Korangyuki, orange-red, Shin Teikai, white, and Blood Red. An attractive group of Kurume Azaleas, arranged on a floor space by Messrs. Wallace and Co., included the well-known Hinodegiri, Amoi No Sara, lilac shades, Takasago, blush, and Sakata, pink.

Messrs. Hillier and Sons had a large group of general Rhododendrons and Azaleas. Along the centre they placed well-flowered bushes of George Hardy, R. Broughtonii and others, rising above bushes of Sir Richard Garton, Corry Koster, Countess of Athlone, Langley Park and similar large-flowered hybrids, with the white R. hortulanus, R. malvatica and mollis hybrids. Mr. G. Reuthe included Rhododendrons Alice Fitzwilliam, exoniense, fragrantissimum, Kurume and mollis Azaleas, with various general flowering shrubs.

Amateurs' Exhibits.

The Challenge Cup offered for the best exhibit in the three classes for groups of Rhododendrons was won by Lady Aberconway and the Hon. Henry D. McLaren (gr. Mr. F. C. Puddle), Bodnant, North Wales, for their splendid first prize collection arranged on a space not exceeding 150 feet super. This exhibit, which must have filled the maximum space allowed, was composed of beautiful and interesting plants, arranged with great skill and taste. The most prominent Rhododendrons were the beautiful blue R. Augustinii, plentiful sprays of R. yedoense, with graceful, double, pink flowers; R. callimorphum, the lovely-shaped bells of Apple-blossom pink colouring; a beautiful pink hybrid between orbiculare and Williamsianum; an unusually deep-coloured form of R. calostrotum; a cross between R. oreotrephes and R. cinnabarinum; Luscombe's Scarlet, Loder's White, R. Thomsonii, and a large, pink Fortunei × Thomsonii hybrid.

The second prize was won by Lionel de Rothschild, Esq. (gr. Mr. A. Bedford), Exbury, Hampshire. This handsome exhibit contained large vases of Loderi, Geoffrey Millais, Slocock's No. 19, a lovely blush-pink truss, and Aucklandii × orbiculare. There were also very good vases of R. Thomsonii grandiflora × R. campylocarpum, Ernest Gill, a pink Aurora hybrid, Penjerrick, R. neriiflorum and R. zeylanicum. Admiral A. Walker-Heneage-Vivian, Clyne Castle, Swansea, was third in this admirable class, and he showed beautiful trusses of Ascot Brilliant, Countess of Haddington, arboreum hybrids of many good shades of pink colour, a good hybrid between R. Falconeri and R. Hodgsonii, and Singleton Blue, a good truss of R. niveum type and colouring.

In the class for a medium-sized group, Lt.-Col. Stephenson-Clarke, C.B., Borde Hill, Cuckfield, and J. C. Williams, Esq., Caerhays, Cornwall, were placed equal firsts. The latter had good examples of R. cinnabarinum, R. Augustinii, Lady Alice Fitzwilliam, R. saluenense, with small violet flowers, R. Iverianum, and several of the small-flowered species of value for the rock garden. The chief sorts shown by Mr. J. C. Williams were R. leptothrium, the rose-coloured R. zephropefolium, R. hippophaeoides, forms of R. sphaeranthum, R. orbiculare and R. haematodes. Sir John Ramsden, Bt., Bulstrode, Bucks, was awarded the third prize for an exhibit of unnamed Rhododendrons.

A. M. Williams, Esq., Werrington Park, Launceston, was awarded the first prize in the class for a group of Rhododendron species, and he showed good sprays and trusses of R. Augustinii, R. decorum, R. hormophorum, R. chasmanthoides, R. impeditum and R. chameunum. The best collection of single trusses of twelve hybrids was shown by Lady Aberconway and the Hon. Henry D. McLaren, who had admirable examples of Coalition, a rich, ruby-red which produces a pistil but no stamens; Loderi var. Patience, of beautiful pale flesh-pink colour, a rich red R. arboreum × Fortunei, and a pink R. Fortunei × Thomsonii. Lt.-Col. Stephenson-Clarke, C.B., who was a good second, had Penjerrick, Loderi, a highly-coloured Gauntlettii × and a salmon-pink tinted form of R. campylocarpum. Sir John Ramsden, Bt., was third. The best six species was shown by G. W. E. Loder, Esq., who included moderate trusses of R. niveum, R. adenopodum and R. campylocarpum. Lionel de Rothschild, Esq., was second.

The exhibits of six hybrids were of great beauty. P. D. Williams, Esq., Lanarth, Cornwall, was first, and he had three distinct hybrids between Smith's Scarlet and Aucklandii, and a fine truss of G. Millais. Sir John Ramsden, Bt., was second, and he included good trusses of Unknown Warrior and C. B. van Ness. G. W. E. Loder, Esq., Wakehurst Place, Ardingley, was first with well-flowered alpine Rhododendrons, and he showed good plants of R. impeditum, R. calostrotum, R. saluenense and a dwarf form of R. racemosum. Sir John Ramsden, Bt., was awarded a second prize for a group of alpines which included R. racemosum, R. virgatum, R. radicans, R. impeditum and R. saluenense.

Single Truss Classes.

The best truss of a species for which a special prize was given by the Hon. H. D. McLaren, was adjudged to be R. decorum, shown by G. W. E. Loder, Esq.; second, R. xenosporum, shown by E. J. P. Magor, Esq.

The best truss of a hybrid for which a special prize was presented by G. W. E. Loder, Esq., was R. Loderi var. Patience, shown by Lady Aberconway and Hon. H. McLaren. The broadly campanulate drooping flowers are nearly six inches across the mouth, and a delicate blush colour; second R. Geoffrey Millais, a large truss of big, white flowers, with brownish spots in the lower petals; shown by Lionel de Rothschild, Esq.

The best truss of a blood-red arboreum was shown by Admiral A. Walker-Heneage-Vivian, Clyne Castle, Swansea, in Sun of Austerlitz; second, Lady Aberconway and Hon. H. D. McLaren.

Only two competed in the class for a truss of the Campanulate series, and the first and second prizes were awarded to Lady Aberconway and the Hon. H. D. McLaren and Lionel de Rothschild, Esq., in this order, for R. Wightii and R. campanulatum respectively. They were quite distinct in colour, the former being cream and the latter violet.

Mrs. Tremayne, Carlew, Perranwell, Cornwall, was alone in the class for a truss of R. Falconeri, and was awarded the second prize.

Seven competed in the class for Aucklandii or Griffithianum, and the premier award was made to R. Aucklandii, shown by G. W. E. Loder Esq.; G. H. Johnstone, Esq., and Admiral A. Walker-Heneage-Vivian were placed equal second.

Of the Fortunei series, the best was adjudged to be R. Fortunei Forrest, shown by P. D. Williams, Esq., Lanarth, St. Keverne, a very richly-coloured form, and the second prize exhibit, shown by Mrs. Tremayne, was also R. Fortunei, a beautiful truss of imposing flowers of a faint blush tint. The rich, cerise-pink R. orbiculare gained a prize in this section.

Three competed in the class for one truss of the Irroratum series, and the largest flowers, of R. Mori, shown by Mr. Magor, were placed first.

There were also three exhibits in each of the classes for Megacalyx sub-series, and Maddenii series respectively. The first prize in the former class was awarded to J. J. Crossfield, Esq., Embley Park, Romsey, for much the largest flowers and truss, and second prize to Mr. Magor for R. Lindleyi.

The best of three trusses of Maddenii series was shown by J. B. Stevenson, Esq., Tower Court, Ascot, who had a superb truss of R. Nuttallii; second, the beautiful, white R. Veitchianum, shown by Lady Aberconway and the Hon. H. D. McLaren.

Two showed in the class for the Haematodes sub-series, and the second prize only was awarded to A. M. Williams, Esq., Herrington Park, Launceston, for R. haematodes.

Lady Aberconway and the Hon. H. D. McLaren excelled in the Neriiflorum series with a splendid truss of R. neriiflorum; second, G. W. E. Loder, Esq.,

Mr. A. M. Williams showed the best truss of the Sanguineum series in R. dichroanthum, and he was second with the same species.

The better of two exhibits of the Taliense series was R. Faberi, shown by G. W. Loder, Esq.; the black anthers are very conspicuous in the open, white flowers; second, R. Wasonii Yellow Gown, shown by Lady Aberconway and Hon. H. D. McLaren.

Mr. Loder also excelled in the class for the Campylocarpum sub-series with a fine truss of the clear yellow R. campylocarpum; second, Mr. A. M. Williams, with R. cyclium, Forrest 15,808.

A grand truss of R. Thomsonii, shown by Lionel de Rothschild, Esq., in the class for the Thomsonii sub-series, was placed first, and the Rt. Hon. the Earl of Stair was second.

For a spray of any deciduous species of the Azalea series there were five competitors, and Lady Aberconway and the Hon. H. D. McLaren excelled with the big-flowered R. Schlippenbachii, a beautiful, pale pink species with light green foliage, forming a rosette at the ends of the shoots; second, R. Vaseyi, shown by the same exhibitors.

The best spray of an evergreen species of Azalea was shown by Admiral A. Walker-Heneage-Vivian.

Mr. Rothschild was awarded the first prize in the class for the Campylocarpum series for R. aureum; Mr. G. W. Loder was second with R. glaucum.

In the Cephalanthum series, Mr. A. M. Williams was first with R. sphaeranthum, and Mr. Rothschild second, with K.W. 3,988, a little gem, with pink flowers and deep pink tubes.

The Cinnabarinum class was poor, and here the first prize was won by Sir John Ramsden, Bart., who also excelled in the Edgworthii series with R. Edgworthii.

The Earl of Stair showed the best of the Heliolepis series in R. rubiginosum, and Mr. Rothschild was second with R. polylepis.

One of the best classes, in which thirteen competed, was for the Lapponicum series, and the beautiful violet-blue R. russatum, shown by Mr. A. M. Williams, won easily, and he also secured the second prize with Forrest No. 16,282, a species like R. impeditum.

Mr. Williams again met with success in the class for the Lepidotum series with R. Baileyi, a very distinct and attractive species with flat, Plum-purple flowers; and he had the best R. Augustinii, one of the showiest Rhododendrons for gardens; the best of the Oreotrephes series, in R. oreotrephes, and the best in the large class for one spray of any of the Triflorum series in the exquisite R. Davidsonianum.

Admiral Walker-Heneage-Vivian was alone in the class for a large-leaved hybrid, and was awarded the first prize.

The exhibits in the class for a hybrid between R. Aucklandii and other species were all of great merit, and Lady Aberconway and Hon. H. D. McLaren had a magnificent truss of R. Loderi var. Patience, which won easily; second, Col. Stephenson-Clarke, with R. Loderi.

Lady Aberconway and Hon. H. D. McLaren also carried off the first prize in the class for an Aucklandii hybrid with a fine truss of R. kewensis × R. Griffithianum.

The best truss of any Azalea-dendron was Hinodegivi, shown by P. D. Williams, Esq. Mr. L. de Rothschild excelled in the class for a spray of any deciduous Rhododendron hybrid, including Azalea. Mr. Loder won in the class for a spray of any cinnabarinum hybrid with a fine cinnabarinum × R. oreotrephes cross having a faint purple suffusion on pink and a deeper pink exterior. In the class for a spray of any hybrid of an alpine species, the first prize was won by Mr. A. M. Williams, with a hybrid of R. fastigiatum × R. Augustinii; the colour is lavender-blue.

HORTICULTURAL CLUB.

Following the dinner of the Horticultural Club on the 5th ult., Mr. W. B. Cranfield delivered a lecture, illustrated by lantern slides, on "British Ferns and Their Varieties." Mr. Cranfield stated that there are between thirty and forty species of Ferns indigenous to the British Isles. Sports presenting infinite variety are found wild and from these wild finds many most beautiful hardy Ferns have been raised, far transcending the parental and normal wild types in interest and beauty. Fifty years ago many of these sports were cultivated which would not obtain recognition to-day, but even by rigorous selection varieties of merit are still very numerous. Lowe's *Hand Book*, published in 1908, describes over 1,700 varieties, of which 1,300 were wild finds. The late C. T. Druery's book, *British Ferns and Their Varieties*, is the most comprehensive work on the subject. The lecturer stated that Fern hunting is full of interest and pleasure, and the most desirable hunting grounds are the more secluded byways and country lanes or hillsides. It must not be thought that the finding of varietal forms was a simple matter—many thousands of Ferns would probably be encountered before a variety worthy of collection would be noticed, and if a week's diligent hunting produced two or three good varieties the collector might be considered fortunate.

The nomenclature of Ferns has given rise to much adverse criticism. He said that botanists are responsible for specific names, Fern-growers for varietal terms. The principle underlying the latter was descriptive, to which, for the purpose of identification, may be added the name of the finder or raiser. Fortunately, all our British Ferns have common names—Athyrium Filix-foemina being known as the Lady Fern, Lastrea Filix-mas and L. Pseudo-mas, as Male Ferns; Scolopendriums as the Hartstongues, Polystichum angulare and P. aculeatum as the Soft and Hard or Bristly Shield Ferns, respectively, etc. The varietal forms are classified into definite groups which lead naturally from one to the other, and once this principle is mastered, nomenclature becomes a comparatively simple matter. A glossary of terms applicable to the various species was to be formed in the British Pteridological Society's *Gazette*.

The most prolific method of reproduction is by spores, as distinguished from seeds in the flowering plant, and other normal means of increase are by growth and division of the crown, by basal buds, bulbils occurring on the fronds, soral and apical apospory.

Mr. Cranfield explained the method of propagating Ferns from basal buds, which may be induced to develop by artificial means, especially in some species. In the case of the Hartstongue, bases of the old fronds may be detached from the caudex, cleansed, and the old roots removed—these, if laid on about two inches of moist, sterilised silver sand in a glass bottle, the mouth of which is protected by a glass slip to prevent evaporation, and the bottle placed on a shelf in a shady place, will form buds, which in from three to six months will develop into young Fern plants. These, when sufficiently rooted, may be removed, potted, and gradually hardened off; the young plants will grow rapidly into fine specimens. Lastrea montana, Athyrium Filix-foemina and Polystichum angulare may be raised in the same manner, though not so readily. With Athyria it is essential that a portion of the caudex be attached to the base of the frond. Though bud sports are not unknown, the young plants will, with rare exceptions, be true to parental types. This method is chiefly adopted with true plumose forms which do not produce spores. The lecturer stated that apospory, both soral and apical, was induced by close cultivation, and occurs in the Soft Shield Fern, the Lady Fern, the Male Fern and the Hartstongue. Soral apospory takes the place of the normal sporangia. In apical apospory the pinnulets are prolonged and the ends of the growths dilated. In both, when laid down in contact with soil and covered to prevent evaporation, prothalli will be formed from which young Ferns will eventually spring, but the progeny cannot all be relied upon to come true, many being ragged, most of them weak constitutionally, but occasionally faults inherent to the parent are bred out.

Bulbils occurring on the rachis of the frond will readily grow if the frond, whilst attached to the plant, be pegged down on fine soil and left undisturbed until roots have formed, when the whole can be removed bodily and the young plants potted off. It is important to peg the frond down securely near its junction with the caudex as well as at the end.

Mr. Cranfield stated that the "pulcherrimum" types in Polystichum angulare are considered the rarest form of variation—only six examples are recorded as having been found wild, and of these only two now survive. Others have, however, been raised in recent years. They require careful cultivation and are not suited to general outdoor conditions.

The choicest varieties for general cultivation are the plumose forms, which are mostly barren, and embrace the "crispum" section in the Hartstongue; "incisum" in Asplenium and Trichomanes; "plumosum" in Lastreas and Athyria; "plumose divisilobes" in Polystichum angulare and the Cambricum section of Polypodium vulgare.

There were three marked periods in the development of Fern cultivation. The raising of the plumose divisilobum section of Polystichum angulare by the late Col. Jones and Dr. Fox; the raising of the superbum types in Athyrium Filix-foemina by the late Mr. C. T. Druery, and the gracillimum varieties in Polystichum aculeatum by the late C. T. Druery, C. B. Green, Dr. F. W. Stansfield and the lecturer.

A series of about ninety slides were shown on the screen illustrating the choicest varietal forms in Asplenium Trichomanes, Athyrium Filix-foemina, Blechnum spicant, Lastrea Filix-mas, L. Pseudo-mas, L. montana, Polystichum angulare, P. aculeatum, Polypodium vulgare and Phylittis Scolopendrium (Scolopendrium vulgare) with sketches showing the life cycle of the Fern; the prothallus and young Ferns in various stages of development; the interior of several indoor ferneries, and Ferns growing in Mr. Cranfield's own garden. The display of the slides was accompanied by running comments on the history or pedigrees of the subjects illustrated.

In conclusion, the lecturer urged his hearers to grow some of the most marked varieties in place of the common or weedy forms usually seen. To enjoy varieties it was not necessary that the plants should be divisions of the original sport but seedlings, if true to type, were, save to the connoisseur, equally attractive. A selection of forty of these beautiful hardy Ferns might embrace the following types, all of which are easily obtainable through trade sources:—Asplenium Trichomanes incisum, Athyrium Filix-foemina cristatum, A. F.-f. percristatum, A. F.-f. plumosum Warminster, A. F.-f. divaricatum superbum, A. F.-f. percristatum, A. F.-f. Frizelliae, A. F.-f. Victoriae, Blechnum spicant cristatum, B. s. plumosum, Airey, No. 2, Lastrea dilatata grandiceps, L. Filix-mas cristata, L. F.-m. polydactylla, L. Pseudo-mas cristata, L. P.-m. polytactylla, Wills, L. P.-m. ramosissima, L. montana cristata, Osmunda regalis cristata, Polypodium vulgare cambricum, P. v. trichomanoides, P. v. grandiceps, P. v. pulcherrimum, Polystichum aculeatum pulcherrimum, P. angulare acutilobum, P. a. congestum, P. a. cristatum, P. a. decompositum, P. a. divisilobum, P. a. d. stipulatum, P. grandiceps, P. plumoso-divisilobum, P. plumosum, P. tripinnatum, Phylittis Scolopendrium crispum (Scolopendrium vulgare), P. S. cristatum, P. S. laceratum, P. S. multifidum, P. S. projectum, P. S. ramo-cristatum.

Obituary.

David Roberts.—The news has just reached us of the death of Mr. David Roberts, at Brook Lane, Chester, on Good Friday last. Mr. Roberts was an old and valued employee of Messrs. Dicksons, Ltd., where he had been engaged for over forty years, and during a large part of that period had charge of the herbaceous and alpine departments of this firm's nursery. He was a very observant man and one who "did good by stealth," consequently he was greatly beloved by all members of the staff and held in very high respect by all who were associated with him in private life. The funeral, which took place at the Grosvenor Park Baptist Church, was largely attended by those who had been associated with him in business and in church work. He was sixty-five years of age, and leaves a widow and one son.

ANSWERS TO CORRESPONDENTS.

BOUNDARIES AND NEIGHBOUR'S RIGHTS.—*E. G. D.* (1) Your neighbour is entitled to build a fowl pen up to the boundary of his land. He is not entitled to enter on your land or path to tar or for any other purpose without your permission, nor can he tar or leave any tar on land or property belonging to you. (2) You have a right to the enjoyment of your property without nuisance from your neighbour's property. If the condition of the stable amounts to a nuisance you can call upon him to abate the nuisance and bring an action to compel him, but in the circumstances the easiest plan would be to lodge a complaint with the local sanitary authority who will condemn the premises if they contravene the Public Health Acts.

DISEASED CROWN IMPERIAL BULBS.—*W. J. W.* No fungus or bacteria likely to cause the death of the plants was found in the diseased bulbs sent us, so possibly the damage is due to some cultural error, such as might be caused by a hoe or a fork.

FRUIT BUDS DAMAGED.—*W. R. G.* The Apple buds have been damaged by birds, probably bullfinches, or possibly by grey squirrels. The loss of the Plum buds might also be caused by birds, either bullfinches or sparrows, which are often troublesome in this way. We have also seen all the fruit buds of Plums drop out as a result of spraying too late with a tar-distillate wash. We suspect spray injury in the case of the Pear buds. Possibly you used an unreliable brand of tar-distillate wash or sprayed when the buds were too far advanced.

GARDENER'S NOTICE.—*W. C. S.* The matter really turns on the custom in your particular locality. Subject to this, it has been held that a head gardener is entitled to give and receive a month's notice. The length of notice an under-gardener should give or receive has not yet been decided by the High Court, but there have been at least two decisions by County Court Judges that the same length of notice applies to an under-gardener. Such decisions, however, are not binding on other Judges. The same length of notice would, presumably, apply in the case of a gardener in sole charge.

NECTARINES AND PEACHES FAILING TO SET.—*V. B.* From your letter, we are inclined to think the trees have made gross growth in the rich border unsuitable for fruiting well. Examine the border next October, partially lift the trees and add more lime-rubble, making the soil very firm afterwards. In a cold house facing west do not syringe the trees until after the fruits have set, and allow the growth to develop in a more natural manner. Pollenate the flowers and admit a little air in the house, both night and day, in blossoming time, to allow excessive moisture to escape.

Communications Received.—L. H.—R. R.—R. F.—E. B.—W. A.—M. A.—A. G.—T. P.—F. K. W.—E. D.—C. M.—G. W. B. G.—A. O. M.—H. S.—T. V.—A. A. L.—J. H. B.—G. A.

MARKETS.

COVENT GARDEN, Tuesday, May 3rd, 1927.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d.	s. d.
Adiantum cuneatum per doz. ...	10 0	12 0
—elegans ...	10 0	15 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus ...	12 0	18 0
—Sprengeri ...	12 0	18 0
Aspidistra, green	36 0	60 0
Asplenium, doz.	12 0	18 0
—32's	24 0	30 0
—nidus ...	12 0	15 0
Boronia heterophylla, 48's, per doz.	36 0	48 0
Cacti, per tray —12's, 15's ...	5 0	7 0
Cinerarias, 48's, per doz. ...	12 0	15 0
Crotons, doz. ...	30 0	45 0
Cyrtomium ...	10 0	25 0
Erica Cavendishii, 48's, per doz.	36 0	42 0
—coccina minor, 48's, per doz.	24 0	27 0
—persoluta, 48's, per doz. ...	24 0	30 0
—Wilmoreana, 48's, per doz.	27 0	30 0
Genistas, 48's, per doz. ...	21 0	24 0
Heliotropes, 48's, per doz. ...	15 0	18 0
Hydrangeas, pink, 48's, per doz.	24 0	36 0
—blue, 48's, per doz.	30 0	36 0
—white, 48's, per doz.	24 0	30 0
—larger sizes, each	4 0	5 0
Marguerites, 48's, per doz. ...	21 0	24 0
Mignonette, 48's, per doz. ...	18 0	21 0
Nephrolepis in variety ...	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	30 0	48 0
—60's	15 0	18 0
Pteris, in variety	10 0	15 0
—large, 60's	5 0	6 0
—small ...	4 0	5 0
—72's, per tray of 15's ...	2 6	3 0
Roses, Polyanthas, 48's, per doz.	18 0	24 0
—Rambler, large plants, each...	5 0	15 0
Spiraea, white, 48's, per doz.	21 0	24 0
—pink, 48's, per doz.	27 0	30 0
Stock, white, 48's, per doz. ...	12 0	15 0
— coloured, 48's, per doz. ...	10 0	12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun	8 0	9 0
cuneatum, per doz. bun. ...	6 0	8 0
Anemone St. Brigid, per doz. bun. ...	2 6	4 0
Asparagus plumosus, per bun., long trails, 6's ...	2 0	2 6
med. sprays...	2 0	3 0
short „ ...	0 9	1 3
—Sprengeri, bun. long sprays	2 0	2 6
med. „ ...	1 6	2 0
short „ ...	0 6	0 9
Carnations per doz. blooms	2 0	3 0
Croton leaves, per doz. ...	1 9	2 6
Fern, French, per doz. bun.	10 0	12 0
Forget-me-not, per doz. bun.	4 0	8 0
Myrtle, green, per doz. bun.	1 6	2 0
Stock, double white, per doz. bun.... ...	6 0	12 0
Gardenias, per doz. blooms ...	3 0	5 0
Gladiolus, Blushing Bride per doz. bun. ...	18 0	24 0
—Peach Blossom, per doz. bun.	21 0	24 0
— The Bride, per doz. bun.	24 0	30 0
Gypsophila, white, per doz. bun.	3 0	4 0
Heather, white, per doz bun.	6 0	9 0
Hydrangea, white, per doz. bun.	36 0	42 0
— coloured, per doz. bun. ...	30 0	36 0
Iris, Spanish, per doz. bloom—		
— blue... ...	1 6	2 0
— yellow ...	2 0	2 6
— mauve ...	1 6	2 0
—white ...	2 0	2 6
Ixia, various, per doz. bun. ...	3 0	4 0
Lilac, white, per doz. stems ...	3 0	4 0
Lilium longiflorum, long, per doz. ...	—	3 6
—short, doz. blooms ...	2 0	2 6
Lily-of-the-Valley, per doz. bun.	30 0	36 0
Narcissus, per doz. bunch—		
—Poeticus ...	3 0	5 0
—Elvira ...	4 0	5 0
—double white	10 0	15 0
Orchids, per doz.		
—Cattleyas ...	24 0	36 0
—Cypripediums	6 0	8 0
Richardias (Arums), per doz. blooms .	3 0	4 0
—yellow, per doz. blooms	—	30 0
Roses, per doz. blooms—		
—Columbia ...	3 0	4 0
—Richmond ...	2 6	3 0
—Madame Butterfly ...	2 6	3 0
—Golden Ophelia	3 0	4 0
—Mrs. Aaron Ward ...	1 6	2 6
—Madame Abel Chateney ...	2 6	3 6
—Hoosier Beauty	2 6	4 0
—Liberty ...	3 0	4 0
—Molly Sharman Crawford ...	2 6	3 6
—Premier ...	3 0	4 0
Smilax, per doz. trails ...	7 0	8 0
Star of Bethlehem (Allium), per doz. bun.	3 0	4 0
Statice sinuata, mauve, per doz. bun.	3 0	4 0
Stephanotis, per 72 pips ...	3 0	3 6
Sweet Peas, in variety ...	6 0	12 0
Tulips, per doz.		
—single white	6 0	8 0
— — yellow ...	9 0	12 0
— — scarlet ...	6 0	9 0
—Darwin, red,	12 0	18 0
— — pink ...	12 0	18 0
— — mauve ...	12 0	15 0

REMARKS.—White flowers are the most valuable in this department, such as double white Stocks and cut Hydrangea. The first consignment of Double White Narcissi have arrived this week. Narcissus ornatus is now practically finished, but more N. Poeticus were available to-day, and prices will gradually lessen during the next day or so. The newest arrivals are Stephanotis, Gladiolus The Bride and a few yellow Richardias Arums, the latter being exceptionally fine in quality. Gardenias are increasing in number daily, and prices for these blooms are on the down grade. Tulips at present greatly exceed the demand owing to the very large quantities of outdoor blooms arriving from all quarters. The improved weather conditions have increased the supplies of Roses and Carnations and prices are easier. Lily-of-the-Valley is one of the shortest subjects in this department at the present time. Coloured Gladioli Blushing Bride and Peach Blossom are much improved in quality, and the small consignments are soon cleared.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus—		
—Cavaillon ...	0 8	0 10
—Lauris ...	1 0	2 9
—Worcester, extra special ...	4 0	6 0
—special ...	2 6	3 6
Beans, Forced—		
—Special ...	1 3	1 6
Beans, Madeira—		
—Finest ...	2 6	5 0
Beets, per cwt.	5 0	6 0
Belgian Chicory, per lb ...	0 5	0 6
Cabbage, per doz.	2 0	2 6
Carrots, per ½-bag ...	4 0	6 0
Cauliflowers—		
—English, per crate... ...	3 0	5 0
Cucumbers, doz.	3 6	5 0
—Flats, 3, 3½, 4 doz.	12 0	15 0
Leeks, per doz.	2 0	2 6
Lettuce, round, per doz. ...	1 0	2 0
—long	2 0	6 0
Mint, forced, per doz. ...	1 0	2 0
Mushrooms		
—cups... ...	2 6	3 0
—Broilers ...	1 6	2 0
Onions—		
Valencia ...	10 6	11 6
—Egyptian ...	—	12 0
Parsnips, per cwt. ...	4 6	5 6
Potatos—		
King Edward—		
ton	£9/10	£10
—others, ton ...	£6	£7 10
Potatos, New—		
—Guernsey ...	0 6	0 8
—Canaries, case	8 0	14 0
—Scilly ...	0 5	0 6
—Azores ...	16 0	18 0
Radishes, per doz.	1 0	2 6
Rhubarb, natural	2 0	3 0
Savoys, per tally	8 0	12 0
Seakale, natural, per ½ sieve ...	6 0	7 0
Tomatos, English—		
—pink, per lb ...	1 8	1 9
—pink and white, per lb. ...	1 8	1 9
—white, per lb.	1 3	1 4
—blue, per lb....	1 3	1 4
—Canary Island	35 0	40 0
Turnips, per cwt.	4 0	5 0

REMARKS.—Active trade conditions are now ruling in Covent Garden, and the quantities of produce available are on a large scale: most kinds of fruits and vegetables are selling freely. This week's shipments of fruits from South Africa consist mainly of Grapes and Pears, and has gone out well. Similar fruits are coming from Australia and also meeting fairly good trade conditions. Australasian Apples, when in good condition, are popular, the supplies being fairly heavy. A few hothouse Grapes are being marketed from the Worthing district. Forced Strawberries continue to sell well, and the few hothouse Figs that are coming also find buyers at good prices Choice vegetables, such as Peas, Beans and Guernsey Potatos, are all a firm market, in spite of very heavy quantities of Asparagus from France, which has been cheap. This latter produce has severely affected the demand for Worcester "Asparagus" which is selling at comparatively low prices. Mushrooms are in good demand just now and their prices are firm. English Tomatos are gradually increasing in quantity and show a slight depreciation in prices. Cucumbers are plentiful, but there is a firm demand and quotations are inclined to be higher. New Potatos are ample for the demand, supplies arriving from Spain, the Canary Islands, the Azores and Guernsey. Green vegetables meet a moderate demand, and the trade in old Potatos is quiet, the best sorts only being inquired for.

GLASGOW.

SEVERE wintry weather had a restricting influence on the turnover of the cut flower market last week, and price movements were narrow round previous low levels. Emperor, Empress and Sir Watkin Daffodils were worth 2/6 to 3/- per dozen, while ornatus varied from 8d. to 1/- for ordinary blooms, and 1/- to 2/- for special outdoor. Tulips were plentiful at 1d. to 3d. per bunch, and indoor specimens of William Copland and William Saunders varied from 6d. to 9d. Carnations continued cheap at 2/6 to 3/6 per dozen. English Irises made 2/- to 2/6 (12's), and Guernsey flowers, 4d. to 8d. per bunch. The value of pink Roses fluctuated between 2/6 and 4/- per dozen; red blooms made 2/6 to 3/6; and white, 2/- to 3/-. English- and Scotch-grown Richardias sold at 2/- to 4/- per dozen; Dutch Richardias at 1/- to 2/-; Lilium longiflorum (Harrissii) sold for 1/6 to 3/- per bunch; Lilac for 1/3 to 1/6; indoor Lily-of-the-Valley for 2/- to 2/6; outdoor, 9d. to 1/-; and Sweet Peas of mixed colours for 2/-. The market was flooded with bedding plants, for which there was little demand at a low price of 9d. per box. Marguerites and Spiraeas averaged 1/ per pot, and the value of Hydrangeas ranged from 2/- to 3/6 each, according to size.

In the fruit section, Apples were obtainable at former quotations. The last shipment of Jaffa Oranges for the present season, which arrived in the Clyde on Wednesday and was sold by auction on Friday, realised from 16/- to 21/- per case. Valencia counts ranged from 15/- to 30/-. There were further consignments of South African fruit, the prices of which ruled as follow:—Doyenné du Comice Pears, 12/- to 24/-; Winter Nelis, 8/6 to 10/-; Beurré Bosc, 9/6 and Glou Morceau, 7/6 to 9/-. Gros Colmar Grapes were worth 1/3 to 1/4 per lb.; Waltham Cross and Red Hanepoot Grapes, 10d. to 1/-.

Daily supplies of new vegetables were plentiful at the following values:—Guernsey Tomatos, 1/8 per lb; Asparagus, 1/2 to 1/4 per bunch; Dutch Lettuces, 6d. per dozen; Cucumbers, 3/- to 4/- per dozen; Peas, 5/- to 6/- per boat; Radishes, 2/6 per dozen; Cabbages, 8d. to 1/- per dozen; Syboes, 2d. to 3d.; Beans, 1/- to 1/3 per lb.; Dutch Carrots, 5d. per bunch; French Carrots, 10d. per bunch Turnips, 8d. per bunch; Potatos, No. 2, 15/6 per case; No. 3, 13/6 per case; and Rhubarb, 6/- to 7/- per cwt.

THE
Gardeners' Chronicle
No. 2107.—*SATURDAY, MAY* 14, 1927.

CONTENTS.

- Alpine Garden—
  - Hutchinsia alpina... 336
  - Phuopsis stylosa ... 336
  - Primula pubescens . 336
- Angus, Mr. G.... ... 332
- Apple scab, the effect of shade on... ... 343
- Conference on labels and labelling ... 332
- Devon, a plant collector in 338
- Florists' flowers—
  - The Dahlia... ... 336
- Flower garden—
  - Hydrangea paniculata grandiflora... 336
  - Orecome Candollei 336
  - Phlox decussata var. Comtesse de Jarnac 336
- Frauds on German gardeners 333
- Frost, a discussion on the recent 331
- Frost, the toll of ... 331
- Fruit garden, the market 342
- Fruit-growing in the Western Cape Province 338
- "Gardeners' Chronicle" seventy-five years' ago 333
- German nursery employee's long service 333
- Ghent, the Rosery at 332
- Hamburgh Horticultural Union... ... 332
- Hawksmoor Nature Reserve 333
- Indoor plants—
  - Cineraria Feltham Beauty 336
  - Fittonias 336
  - Impatiens Holstii... 336
- Kew, Bluebells and Lilac at 331
- Kew, visitors to, in 1926 332
- Moth, the Golden-8 ... 341
- Musa Basjoo in France, the fruiting of ... 337
- Obituary—
  - J. A. Nix 346
- Pear Verulam... ... 343
- Plants, a new Order on the sale of diseased 333
- Potatos (Canary Islands) Importation Order, 1927 ... 333
- Societies—
  - Dundee Horticultural 346
  - German Horticultural 346
  - Glasgow and West of Scotland ... 344
  - Moray Field Club ... 346
  - National Auricula and Primula ... 343
  - Royal Horticultural 344
  - Truro Spring Flower Show 346
- Soil acidity, the control of, by aluminium sulphate 340
- Tulips in Hyde Park 340
- Vegetable garden—
  - Rhubarb 342
- Week's work, the ... 334

ILLUSTRATIONS.

Angus, Mr. George, portrait of 332
Cineraria Feltham Beauty 335
Fruit growing in the Western Cape Province, 338, 339
Moth, the Golden-8 341
Musa Basjoo, fruiting of, at Verrieres... 337
Rhododendron russatum... 333

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 53·6°.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 11, 10 a.m. Bar. 30·4. Temp. 50°. Weather, Sunny.

The Toll of the Frost. No excuse is needed for a return to a subject which must be uppermost in the minds of gardeners, notwithstanding the delightful weather of early May, and the rapid progress Nature has made in covering up the traces of her own harshness. A point which emerges from the reports of gardeners in different parts of the country is the apparently inconsistent behaviour of certain plants in different gardens, and the escape of others which are not usually considered hardy. The list of these is too long for detailed enumeration, but few experienced gardeners would have expected to see Piptanthus tomentosus emerge from the ordeal unscathed, or Paeonia Emodi, in full flower; Paeonia Witmanniana is sometimes cut down in a severe spring, but showed no sign of hurt in the recent frost, nor did the Majorcan P. Cambessedesii. On the other hand, the hybrid tree Paeonies suffered as they usually do, while P. lutea was slightly scorched and P. Delavayi not at all. A seven-year-old plant of Azara microphylla, which bore the bitter easterly winds of the spring of 1926, is now entirely blackened. In one garden Cistus ladaniferus is unharmed, while Philadelphus Wilsonii, Hamamelis mollis and Styrax Hemsleyanum, close to it, have been stripped of their foliage. The same thing has happened to Davidia involucrata and D. Vilmoriniana for the second year in succession, and Nothofagus cliffortioides is every colour of the rainbow. Pieris taiwanensis had a very narrow escape, and Osmanthus Forrestii has parted with all last year's growth. In this case, however, the plants are only eighteen inches high and not out of the nursery stage, so the test may not be a fair one. Osmanthus Delavayi is serene, though it was severely cut by the east winds of April, 1926. Neither Viburnum Carlesii, V. bitchiuense nor V. fragrans seem to have suffered, and, wonderful to relate, Carpenteria and Fremontia are unscathed. Daphne Blagayana, in flower, maintains its reputation for hardiness, but neither Arctostaphylos Manzanita, Tricuspidaria dependens nor Trochodendron look as if they would recover. The most astonishing contradictions, however, are, perhaps, to be found among Lilies, for three of the species with robust constitutions have suffered most. From many parts of the country come reports of the remarkable discomfiture of L. regale, which is usually reckoned one of the hardiest of the genus. It has been cut down right and left in hundreds. L. Henryi is not in much better case, and L. giganteum has lost its larger leaves; not many living gardeners can have seen that before. L. centifolium has also suffered. None of the other species seems to have come to any harm except the Formosan form of L. philippinense. L. Willmottiae and L. Davidii stand serene, in one instance over the prostrate forms of L. regale, as if to point the moral. The bulbs should be strengthened by the premature destruction of the stems. At such times the generally accepted standards of hardiness go by the board, for in the majority of cases it is the new growth alone of plants which has been damaged, the old growth remaining unhurt, as indeed, it remains in winter frosts of far greater intensity. The common Laurel is an example, for that will bear a very severe winter frost; yet the new shoots curled up in the last week of April. No doubt certain broad facts would emerge from carefully collated reports from gardens in all districts, but the contradictory character of the reports about the behaviour of identical plants in different places militates against the formation of definite conclusions, except, perhaps, that such visitations are a national calamity.

A Discussion on the Recent Frosts.—At the meeting of the R.H.S. Fruit and Vegetable Committee on Tuesday last, the Chairman, Mr. A. H. Pearson, said it would be interesting if those present gave their experiences of the damage done by the recent frosts. Mr. E. A. Bunyard stated that in his district there were 10° of frost, and the anthers and pistils of Apples were, in most cases, entirely destroyed, and even in the bud stage the pistils were badly affected. Of Strawberries the White Pine variety, which retains all its leaves in winter, was practically uninjured and hardly a bloom had been damaged. He stated that the flavour of this old variety was very good, and in view of its hardiness it was a promising parent for raising a new variety. He was surprised at the hardiness of Pears. One member stated that a hedge of Cupressus Lawsoniana was entirely destroyed by the frost. Mr. E. Beckett stated that Roses especially had suffered severely, and he believed that fifty per cent. of the Roses at Aldenham were killed. Mr. Laxton said that maiden Roses in his nursery looked "very sick." Mr. A. H. Pearson reported that at Lowdham the Rose bushes were killed half way down the stem, but that the buds in the lower part, even those in growth, were not affected. Mr. J. Cheal stated that the young growth of Yew was untouched, but all that of Box looked as if it had been singed. It was the common experience of the members that whilst many reputedly hardy plants had suffered badly, for instance, Ivy on walls, and the common Laurel, other plants which might have been expected to be more tender, such as Moutan Paeonies, were not touched. It was reported that at Wisley there was 16° of frost; the plants in the high lands had escaped, but those in hollows and the lower parts of the garden were much damaged. The trial of Black Currants, and especially those of the Baldwin type, was so badly crippled that the trial would be useless this year, but, interestingly enough, Red Currants seemed but little affected. The general experience of the members was that the damage was most severe in the case of plants growing close to the ground, such as Strawberries and Gooseberries.

Bluebells and Lilac at Kew.—Among the many attractions offered at present by the Royal Gardens, Kew, two stand out particularly because of their extent and the strong appeal they make to the general public; these are Bluebells in the Queen's Cottage ground, and the Lilacs near the Temperate House and in other parts of the gardens. The Bluebells are a never failing source of interest, and although the flowers may vary a little in numbers and quality from year to year, they never fail to produce a scene that is at once very beautiful and very English. The great carpet of blue seen on a bright day when there is a fine play of light and shade, as the fresh greenery of the trees is moved by the April breezes and filters the sunshine, is worth going a long way to see. In addition to species of Lilac (Syringa), Kew has a fine collection of garden varieties of this graceful and fragrant flower. Her Majesty Queen Mary rarely fails to pay one or more visits to Kew during Bluebell time, and only a few days ago she was one of many who found delight in this homely woodland flower.

Cider-Testing at Long Ashton.—On Thursday, May 5, a large number of visitors attended the Research Station at Long Ashton in connection with the Cider-testing and Cider Competitions held annually at this station. After the sampling of the Ciders the visitors were shown the experimental work in progress in the plantations and laboratories and the more important points were demonstrated to them. There were five classes for Ciders and one for Perry, and the number of entries was surprisingly high, considering the limited crop of cider Apples last season. The programme included conducted tours through the plantations, where the pruning and shaping of trees, fruit breeding, trials of Apple stocks, manuring, and Strawberry investigations were inspected, and demonstrations given of tractors and spraying machines.

Gardens and Queen Alexandra Memorial.—We are asked to point out that applications for lists of the gardens to be opened for inspection on behalf of Queen Alexandra Memorial Fund should be addressed, not to Mr. F. H. Mitchell, but to the General Secretary, Mr. Lloyd-Warren, 28, Windsor House, Victoria Street.

Flora of the Highlands of Central Abyssinia.—An interesting account of his travels in Abyssinia was given by Dr. Hugh Scott at the recent meeting of the Linnean Society. Dr. H. Scott went to Abyssinia for the purpose of studying the insect fauna, and so far as possible the flora of the highlands of Central Abyssinia. The fauna and flora of this region are of peculiar interest as they are those of a large, well-watered elevated country in the heart of Africa, isolated from surrounding regions by low-lying desert or semi-desert tracts; and they exhibit a remarkable blend of Palaearctic, Ethiopian and Oriental elements. No systematic collecting of small insects had previously been done in this part of Abyssinia. The expedition set out from Addis Ababa, the capital, over 8,000 feet above sea-level, and by trekking with mule caravan and camping during many weeks, several very different types of country, lying at elevations between 5,500 and 12,000 feet, were visited.

They included the primeval forest of Djem-Djem, composed mainly of giant Juniper trees; Mount Zuquála, an extinct volcano with a lake in its crater, and covered with giant Heaths and other interesting vegetation; the plains southwards to Lake Zwai, a region of dry bush and thorn-scrub; the park-like country, forest and Heath-land of Mount Chillálo; and the Muger Valley, a great chasm more than 2,000 feet deep, with precipitous sides. The lantern slides shown illustrated the different kinds of country and vegetation (especially the curious mixture of temperate and distinctly African plants frequently met with), as well as some aspects of the human life of Abyssinia.

Interesting Pictures and Plants of Kew.—A collection of pictures and plants relating to the village of Kew and the early history of the Botanic Gardens during the latter part of the eighteenth century has been hung in Kew Palace. For some time the collection has been exhibited amongst the botanical pictures in Museum 3, but here they were only available for the inspection of a few. The pictures relate to the period when Her Majesty Queen Caroline, H.R.H. the Princess of Wales (Augusta of Saxe-Gotha), the Earl of Bute, H.M. King George III, and Sir Joseph Banks took a great interest in the Royal Gardens, and when Sir William Chambers was engaged to design several of the buildings.

Hamburg Horticultural Union. — During Easter week the Horticultural Union for Hamburg, Altona and district, held, in Altona, a spring flower show. In spite of heavy business just previously, and consequent shortage of material, the local nurserymen sent very fine exhibits; the bulbs grown in the open, however, were not quite ready, and the Darwin Tulips especially did not make the fine colour-display which usually distinguishes them. Narcissi, on the other hand, were in full beauty, and the firm of Hufeld, of Darmstadt, had an impressive exhibit, including N. poeticus ornatus, N. Cervantes, N. Silver Queen and others. Mr. Wilhelm Pfitzer, Stuttgart, showed a Gladiolus garden which was very effective. The weather was perfect for the time of year, and, in consequence, visitors were very numerous, and the exhibition was in every way a success.

High Price for a Cherry Orchard.—It is the practice in the Cherry-growing districts of Kent to sell the orchards at this time of the year, and although it is so very early in the season, experienced buyers can tell with a measure of certainty what the result of the crop is likely to be. On Friday, April 29, an orchard of twenty-and-a-half acres, situated at Teynham, made the high price of £9,125, which works out at over £450 per acre. As there was frost amounting to 13° in some parts of Kent on April 27, the venture would seem to be somewhat speculative, but doubtless the buyers were perfectly satisfied that a good crop had set and was beyond the stage when the fruits were likely to be ruined by frost. Some of the finest Cherries are grown in the Teynham district, where these fruits have been cultivated since the reign of Henry VIII.

The Rosery at Ghent.—In the pretty park which occupies the site of the ancient Citadel at Ghent, in Belgium, there is a rosery, which was commenced in 1911, and largely furnished by a number of French Rose-growers, who sent many thousands of trees as part of their contribution to the Ghent Quinquennial Exhibition of 1913. Since that time many of the original trees have died, but it is now proposed to restore the Rosery, and the Society, "Les Amis de la Rose," has undertaken to supply the necessary material. The planning and arrangement will be in the hands of M. H. de Wilde, the Ghent Director of Public Parks.

Cold Weather in the North.—This has been a very trying season in the north of Scotland, writes a northern correspondent. Rain, sleet, hail, snow and severe frosts have played sad havoc over the whole countryside in gardens, nurseries and fields, and nowhere is this more pronounced than in the fair and early district of Morayland, well-named the Garden of Scotland. Fruit blossom—Plum, Pear and Cherry—has suffered severely owing to the frost. Apple blossoms, in some cases, were not very far advanced, but much has doubtless been damaged. Hard frosts during the closing days of April cannot fail to have a disastrous effect on the fruit crops. In gardens, the spring flowers have been seared, and young plants just coming through the ground from early-sown seed, have been withered. Early Potatos have also suffered severely. Not since so far back as 1877 has such Arctic weather been experienced in the north during the closing days of April and the advent of May.

Mr. George Angus.—Inverness is to be congratulated upon securing the services of Mr. George Angus as Superintendent of the Corporation's Parks and Cemeteries, an appointment he takes up during the present month. Mr. Angus has the requisite qualifications for his new post, and was chosen unanimously from a short list of able men. For many years he served as general foreman at Drumlanrig Castle, under the late Mr. Inglis, who was a great gardener and organiser. Mr. Angus left Drumlanrig to take charge of the Hon. Mrs. Merry's gardens at Balladrum, which includes one of the most extensive flower gardens in the north of Scotland. He served in France with the Scots Guards during the war, and as he is still a young man he promises to adorn the horticultural profession for many years to come.

MR. GEORGE ANGUS.

Trials of Fuchsias at Wisley.—The Royal Horticultural Society invites growers to send varieties of Fuchsia, both hardy and for growing under glass, to its Gardens at Wisley for trial during the present season. Three plants of each variety should be sent to reach the Director R.H.S. Gardens, Wisley, Ripley, Surrey (Horsley Station, Southern Railway), on or before May 31, 1927.

Inspection and Certification of Strawberry Plants.—The Ministry of Agriculture and Fisheries, on the recommendation of its Horticultural Advisory Council, proposes to set up a voluntary scheme of inspection and certification of Strawberry plants, which will be useful in the case of sales of stocks. Plants from which runners are intended to be taken for sale will, on application by growers, be inspected and certified if they are found to be true to variety. Present knowledge of certain of the diseases of Strawberries is insufficient to enable the Department to certify entire freedom from them, but certificates will not be issued for stocks which are obviously unhealthy. Lists of growers holding certificates in respect of Strawberry stocks will be published at the end of the inspection season so that purchasers may be informed of them. Growers who wish to avail themselves of the facilities offered under this scheme should make application to the Secretary of the Ministry, 10, Whitehall Place, London, S.W.1, before May 31. A fee of 7s. 6d. per acre or part of an acre of Strawberry plants inspected will be charged for each inspection, with an additional charge of 1s. per certificate, and 3d. for each copy certificate.

Visitors to Kew in 1926.—According to the *Journal of the Kew Guild*, the total number of visitors to the Royal Botanic Gardens, Kew, during 1926, was 1,162,547, a decrease of 509,293 on the figures of the previous year. Doubtless the decreased attendance is the result of the reimposition of the charge of one penny for admission. It seems a great pity to deny over half-a-million people the pleasure of visiting these national gardens, and although the sum charged is but a trifle, poor persons with large families would find it a heavy tax.

"Tribune Horticole."—Our Belgian contemporary, *La Tribune Horticole*, for May 7, contains a portrait and a generous appreciation of the Managing Editor of *The Gardeners' Chronicle*, Mr. Charles H. Curtis. This excellent little paper, which was temporarily suspended during the war, has now regained all its former well-deserved popularity.

Conference on Labels and Labelling.—A Conference on Labels and Labelling will be held in the Conference Tent at the Chelsea Show on Thursday, May 26th, at 2.30 p.m. Mr. Mark Fenwick, J.P., will preside, and Mr. H. Gilbert-Carter, M.A., the Director of the University Botanic Garden, Cambridge, will open the discussion, followed by a contribution by Mr. A. Bruce Jackson, A.L.S., and Mr. A. Grove, F.L.S. A discussion will take place, and visitors attending the Conference will be allowed to express their views within the limitation of the time at the disposal of the Chairman. A small representative exhibit of labels will be placed in the tent.

New Public Park at Stuttgart.—For a long time the authorities at Stuttgart have been considering the question of taking over the park at Meierei Rosenstein, which occupies a space of seventy hectares, for a public pleasure ground, and also forming a zoological garden in connection therewith. The park has now been thrown open, but the other question is still in abeyance. The park occupies one of the finest positions in Stuttgart, and hitherto a fee of fifty pfennigs (half-a-mark) has been charged for admission. It is beautifully furnished with valuable old trees, and adjoins the Botanic Garden, which has also been made over to the public, who may now freely visit it without charge.

"Dahlia Year Book."—The *Dahlia Year Book* for 1927 is the best the Society has published for very many years, and we congratulate both the Society and Mr. W. J. Chittenden, the Editor, on contributing such a useful volume to the literature of the Dahlia. The frontispiece is a portrait of Mr. D. B. Crane, the Hon. Treasurer of the National Dahlia Society, and a very keen amateur florist generally; he has been for upwards of thirty years a member of the Floral Committee of the National Chrysanthemum Society. Amongst the many excellent articles are "The Dahlia as a Garden Flower and for Cutting," by Mr. A. E. Townsend; "Some Commercial Aspects of Dahlia Culture," by Mr. Alfred Vasey; "Dahlias in the Kew Herbarium," by Mr. J. Fraser, V.M.H.; "Notes on Dahlia Novelties of Last Season," by Mr. J. B. Riding; "Dahlias as Plants for Tubs," by Mr. Hugh A. Pettigrew; and a series of articles on Dahlias in Public Parks, by Mr. W. H. Johns, Capt. B. H. MacLaren, Mr. F. G. Cousins, Mr. W. W. Pettigrew and Mr. J. T. Jeffrey. There is an excellent portrait of Mr. T. Hay, the Superintendent of Hyde Park, who has done so much to popularise the Dahlia as a plant for public parks and gardens. Comments on the Dahlia Show of 1926; notes on the Dahlias selected for trial at Wisley in 1926, and the report of the Committee of the National Dahlia Society for 1926 will all be read with interest. We are glad to see that the Society is in a better financial position than for very many years, for on November 10, 1926, there was a balance in hand of £123 15s. 7d., whilst the balance of assets over liabilities amounted to £118 19s. 7d.

Importation of Potatos (Canary Islands) Order of 1927.—In view of the discovery of the Potato Moth in consignments of Potatos imported this season from the Canary Islands, the Minister of Agriculture and Fisheries has made an Order under the Destructive Insects and Pests Acts 1879 and 1907, prohibiting the landing in England and Wales of any Potatos grown in the Canary Islands unless they are accompanied by the certificate of health prescribed in the Destructive Insects and Pests Order of 1922. The Order came into operation on May 2, but it allows for the landing of Potatos shipped from the Canary Islands prior to that date.

Frauds on German Gardeners.—In prison at Erfurt, there is a man who last year carried out a colossal swindle by which thousands of gardeners and nursery employees suffered. Under the name of "Thüringer-Pflanzenkulturen," he advertised in about three-hundred newspapers young fruit trees, bulbs, bushes, and most of all, Potatos, at fabulously low prices, demanding payment in advance, and sacks in which to send the Potatos. In a few days he had received at his office 10,000 marks in money, and huge piles of sacks! It was only by a fortunate chance that the Police detected the swindle and arrested the rogue.

Hawksmoor Nature Reserve.—An estate of about 207 acres, situated some 600 feet above sea-level, near Cheadle, has been acquired for the nation by the National Trust. The estate consists of plantations, moorland, marshes and valleys and, with its wealth of wild flowers, forms a picturesque area in Staffordshire, midway between Cheadle and Oakamoor. It is the resort of several rare birds, and one of the objects of the National Trust in acquiring the estate has been to make it a sanctuary and a place for the preservation of animal life. The birds met with there include the bittern, dipper, water rail and sandpiper. The cost of the property was £1,200, which was raised by public subscription; the management will be invested in the North Staffordshire Field Club, under the auspices of the National Trust.

A New Order on the Sale of Diseased Plants.—The new order issued by the Ministry of Agriculture, entitled, "The Sale of Diseased Plants Order of 1927," came into force on April 25, and prohibits the sale or exposure for sale of any plant which bears evidence of having been substantially attacked by the Apple Capsid, or of any trees, shrubs, seeds, tubers, bulbs, layers, cuttings or any other parts of a plant which are substantially attacked by the following pests:—Fruit Tree Cankers, American Gooseberry Mildew, Silver Leaf, Black Currant Mite, Woolly Aphis, all Scale Insects, Brown Tail Moth, Rhododendron Bug, and Powdery or Corky Scab of Potatos. The reason for the Order is the serious complaints that have been made to the Ministry during the past few months of the increase of the Capsid Bug on Apple trees in certain districts. The need for a drastic Order was strongly urged, and the Ministry, after full consideration of the advice of its Horticultural Advisory Council, decided that the most practicable method of dealing with the matter was to add the pest to the Schedule to the Sale of Diseased Plants Order of 1922. The opportunity was taken of making other small amendments of the regulations, and the new Order is the result.

German Nursery Employee's Long Service.—Franz Wieschke, the head gardener in the nursery of Mr. J. C. Schmidt, Erfurt, celebrated, on April 1, the completion of fifty years' service with the firm. It was on April 1, 1877, that he began work as an assistant in the pot-plant department, where he showed such zeal that he was soon promoted, and as the firm grew in size and importance, his own position steadily improved. He still has the entire confidence of his employers, who celebrated the fifty-years' jubilee by a "festive breakfast," at which several members of the firm were present and congratulated him warmly, also handing to him a message of greeting from the President of the Reich, signed by his own hand.

The Gardeners' Royal Benevolent Institution.—The Committee of this Charity is distributing in grants this year from the Victorian Era Fund and the Geo. Monro Memorial Fund sums amounting to £226 to the candidates who were unsuccessful in securing election as pensioners in January last.

Appointments for the Ensuing Week.—WEDNESDAY, MAY 18: Royal Gardeners' Orphan Fund meeting. FRIDAY, MAY 20: Manchester and North of England Orchid Society's meeting; Royal Gardeners' Orphan Fund Annual Festival Dinner at the Hotel Victoria. SATURDAY, MAY 21: Wakefield and North of England Tulip Society's show (four days.).

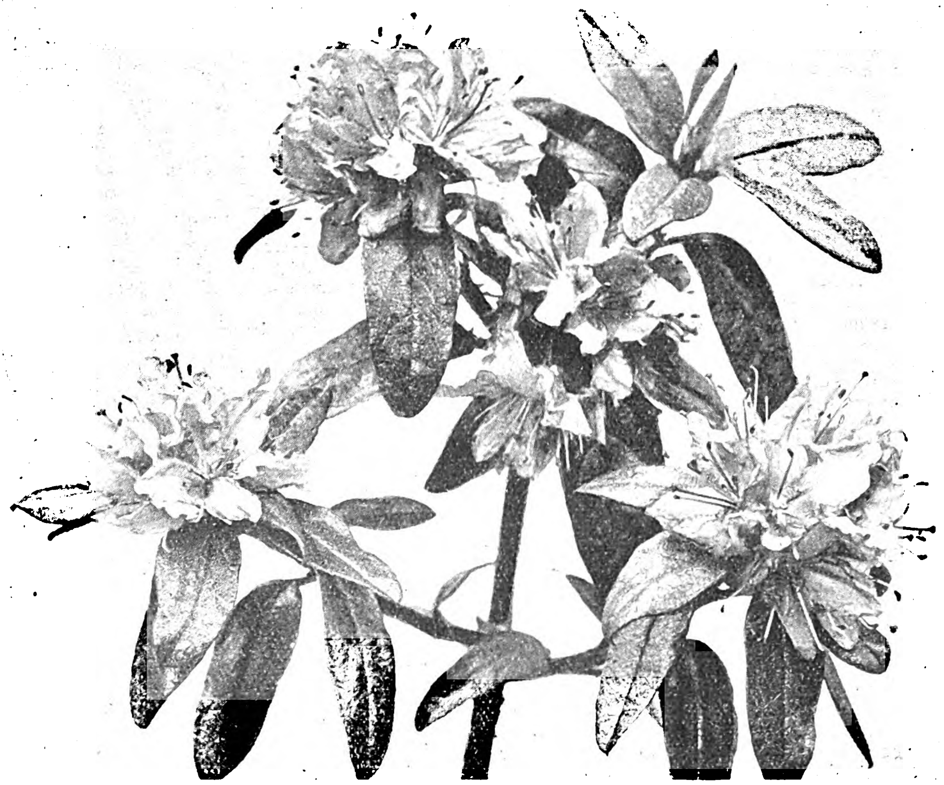


FIG. 158.—RHODODENDRON RUSSATUM.

R.H.S. Award of Merit, Rhododendron Show, May 3. Flowers purplish-blue. Shown by Mr. A. N. Williams, Werrington Park, Launceston. (see p. 328).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Exhibits at Chiswick Gardens.*—Saturday, May 8, 1852, will long be celebrated in the annals of horticultural exhibitions. Such a mass of noble plants as was then produced at Chiswick no one ever saw before. Accustomed as we have long been to displays of the kind, and especially to those in May, we must own that we were as agreeably surprised as our neighbours. It was known that Mr. Rucker would not show Orchids, and that part of the exhibition was looked to with doubt. He did not show; yet such was the vast display of noble specimens that he was not missed. It was expected that Pelargoniums would be behind-hand, owing to the season, and yet the place assigned to those plants was full to overflowing. At four in the morning the approaches to the garden were crowded with some thirty or forty caravans, and till half-past-eight, the hour of closing the gates, the stream of such vehicles continued to flow. A lady, celebrated for her horticultural enthusiasm, sent nineteen caravans full; sixteen horses were required to drag the contributions of another exhibitor, and thus the tents were filled; and not only the exhibition tents, but every other tent in the Garden. Of the plants themselves, our reporter has given ample details. Here glowed a forest of Chinese Azaleas, too brilliant to be steadily looked at; there arose a long bank of Orchids, perfuming the air and delighting the observer with their tender colours and extraordinary forms; one tent was redolent of Roses; another sparkled with the enamelled blossoms of the Cape Heaths; in a third, Australia presented the fairest and gayest children of her golden soil. Many novelties also made their first appearance, conspicuous among which were the Mysore Hexacentris, whose gaudy red and yellow flowers were shown to advantage by a graceful twining habit; Saxe-Gothaea, worthy of its illustrious name, which, together with Fitzroya, is expected to rank among the finest hardy exotic Coniferous trees, and a charming little Azalea, called amoena, just introduced by Mr. Fortune, from China, and said to be as hardy as Rhododendron ferrugineum, which it resembles. The air was warm and the day propitious; but the trees were almost leafless, and the turf and shrubberies were browned by the long, cold, rainless weather, so that the lovers of flower shows might be well excused for deferring their visit till a later day. Nevertheless, the visitors amounted, exclusive of exhibitors, to 2,755, who thoroughly enjoyed the most admirable display of horticultural skill which has ever yet been seen. *Gard. Chron., May* 15, 1852.

Publications Received.—*The Low Road: Hardy Heathers and the Heather Garden*, by D. Fyfe Maxwell; Sweet and Maxwell, 2 and 3, Chancery Lane, W.C.2. Price 6/6 net.

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Orchid Grower to LADY LEON, Bletchley Park, Bletchley, Bucks.

Anguloa.—The members of this genus are amongst the most tractable of Orchids to cultivate, and when in bloom are of considerable interest. They are now developing young growths and flower buds, which appear together. If repotting is necessary it should be done so soon as possible after the flowers have faded, as the new roots will then be developing from the bases of the young growths. The most desirable species to grow embrace such sorts as A. Cliftonii, A. Clowesii, A. Ruckeri, A. eburnea, A. uniflora and the hybrid A. intermedia. Anguloas are strong-rooting plants and require a retentive compost; they succeed in a similar compost to that used for Lycastes, and it should be made firm. It is advisable to reduce the old ball of soil as much as possible and to remove all the useless old pseudo-bulbs at potting time. The plants thrive in a shady part of the intermediate house, or at the warmer end of the cool house. Care should be taken that moisture does not accumulate in the young growths, or they may decay at their bases. Red spider may infest the undersides of the leaves during the season of active growth, and if the pest is detected the plants should be dipped in an insecticide.

THE KITCHEN GARDEN.

By R. H. CROCKFORD, Gardener to THE RT. HON. LORD WAVERTREE, Horsley Hall, Gresford, N. Wales.

Celery.—Strong, well-hardened plants which have been raised for the earliest supply should now be planted in the trenches. If the soil is dry, soak it with water previous to planting. Lift the roots carefully with a trowel or handfork, and set the plants either in single or double rows. Allow a distance of about one foot between each plant and put them alternately in the double rows. Water the trenches freely so soon as planting is finished, and take care that the plants do not suffer from drought at any time. Keep the foliage lightly dusted with old soot. Should frost or cold winds prevail, a few Pea sticks placed over the trenches will provide the necessary protection. Where spot disease is troublesome spray the plants at an early stage of their development with Bordeaux mixture.

Runner Beans.—Seeds of Runner Beans may now be sown in the open. Place the seeds about two inches deep, in double rows, made one foot apart, and allow the same distance between the seeds in the rows. Care should be taken that the young growths are not eaten by slugs, especially when they are appearing above the soil. In gardens where slugs are very troublesome raise surplus plants in boxes to make good deficiencies in the rows.

Potatos.—Complete the planting of late Potatos. Keep the hoe at work during fine weather amongst the earlier rows or weeds will be troublesome later.

Leeks.—The trenches or sites on which Leeks are to be grown should now be well prepared by deep digging and manuring in readiness for setting out the young plants so soon as they are ready for transplanting. Strong, well-hardened seedlings, which are being grown for early exhibitions, may now be planted in well-prepared ground in a sheltered situation. Place the necessary cardboard collars around the plants in good time in order to secure as great a length of blanched stem as possible.

Radishes.—During hot, dry weather Radishes should be grown in a cool, semi-sheltered position. Keep the young plants moist and growing actively, or the roots will be tough and stringy.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Asparagus medeoloides.—Young Smilax plants raised from seeds sown early in the year are ready for putting in their permanent quarters. This plant is usually grown on the back wall of a vinery in a special bed made of good turfy loam, leaf-mould, sand and old Mushroom-bed manure. Arrange a wire along the bottom and another at the top of the wall to carry strands of thread or fine string at intervals of nine inches for the trails to climb up. Rain-water should only be used for watering this plant for the foliage will be liable to become discoloured with service water.

Repotting.—May is a month when there appears to be no ending to the work of repotting plants grown to produce flowers under glass; everything appears to require attention daily. There are seedling Begonias, Streptocarpuses, Gloxinias, Browallias and Coleus, to mention only a few, which need this attention, while rooted cuttings of various subjects will need potting singly as they become ready. It is never wise to allow any of these young plants to become starved in small pots before transferring them to larger receptacles. A good stock of loam and leaf-mould should always be kept under cover from heavy rains so that the work of repotting may be proceeded with in all weathers. However pressing this work may be, clean receptacles should always be used, otherwise the next time the plants need repotting, many of the roots will be found adhering to the sides of the pot and get broken in turning them out.

Bouvardias.—Cuttings of Bouvardias should be placed singly in small receptacles immediately they are sufficiently rooted. Use a good, open compost and continue to grow the plants in a fairly warm temperature. As they advance in growth, pinch out their tops on several occasions to cause them to form bushy specimens. In due course they may be grown under much cooler conditions. Large specimens may be obtained by planting the old stock plants in a cold frame during the summer, and placing them direct in their flowering pots early in September.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to COLONEL SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Pot Vines.—Cut backs or other pot vines which are intended for fruiting next year are growing fast and when the roots have become established in the compost they should be fed with warm, diluted liquid manure. The syringe should be used freely when the temperature of the vinery begins to rise in the mornings, and the young rods and foliage should be syringed again after closing the house. Keep the canes trained fifteen inches or eighteen inches from the roof-glass, and pinch all laterals at the first joint from the base; all sub-laterals which develop as the result of stopping the leaders may be removed. Stop the rods when they have made eight or nine feet of growth. As the vines assume a brown colour the amount of ventilation may be increased gradually. If the pots have been placed on pedestals or inverted pots, the fermenting materials placed around them may be gradually drawn away, otherwise the roots will grow through the pots and the vines continue to grow when they should be ripening. The temperature at night may range from 68° to 70°, and in the daytime about 80°, rising to 85° after closing the vinery in the afternoon.

Strawberries in Pots.—These plants will now require a large amount of water. When the berries are colouring keep the ventilators wide open, and syringe freely those plants which are swelling their fruits up to the time the latter show signs of ripening, when syringing should be discontinued. As the latest batches of plants approach the flowering stage, the blossoms should be well-thinned before they expand, ten fruits to a plant being ample, those produced by the terminal buds being the finest. Any plants still remaining out-of-doors should be placed in cold pits or frames; they will not require so much watering as those on shelves in the houses. Let the foliage be close to the glass without actually touching it or impeding the circulation of the warm air above it. Carelessness in watering and syringing often results in attacks of red spider and mildew. The safest and best preventive of these troubles is weekly syringing with clear sulphur water. Make 1lb. of sulphur into a paste, add nine gallons of soft water, stir well, and allow the sulphur to settle at the bottom of the tub before using the specific. If mildew is present the sulphur water may be used at full strength overnight and the plants syringed with clear water early the next morning. If only used as a preventive, dilute each gallon by adding four more gallons of water, and apply it every evening when the plants are not in flower. Green fly spreads rapidly if not checked and soon spoils the fruits. The house should be fumigated carefully up to the flowering stage of the plants. Fire-heat, if ever so mild, is a great help to the plants when they are in flower and swelling their fruits. Maiden plants, put out last August for the special purpose of furnishing runners for forcing, should be carefully mulched and watered. In this case early runners are of more importance than fruit, hence the advisability of removing all flower stems.

THE FLOWER GARDEN.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Polyanthuses.—Many gardeners discard Polyanthuses when they have done flowering in beds, with the possible exception of some very fine varieties which it may be desired to retain for stock, dividing them for this purpose and planting the portions in the reserve garden. Instead of throwing away the general stock, the plants may be put in semi-wild situations in the garden, also used for under-planting large beds or groups of deciduous shrubs. In suitable conditions they will make large clumps and give a fine display for several years. Another Primula which is beautiful under such conditions is Jewel, a hybrid of P. Juliae. This variety grows and flowers very freely in semi-shade, or in the open; it has been very beautiful recently in partial shade under trees, and has all the appearance of holding its own in thin grass. It is very easily propagated as it divides readily, and a large stock may soon be raised by division after the plants have finished flowering.

Auriculas.—When varieties of the alpine section have finished flowering, they should be lifted, divided and replanted in the nursery garden. I refer to plants used for filling beds; the same remarks apply to groups in the rock garden, as all the members of this section benefit by being divided and planted down to the lower leaves to cause them to develop fresh roots from the root-stock. When division takes place it is often necessary to cut away a portion of the old root-stock. All Primulas in this section are best divided so soon as they have finished flowering.

Clematis montana.—This climber and its coloured variety rubens should receive what pruning is necessary after they have finished flowering, as they bloom either on old spurs or on shoots of the previous year. Retain and train in any of the growths that are required for extension.

Wistaria.—This climber also requires pruning during the growing season. As the flowers are produced on spurs, all young shoots, except those required for extension, should be cut back and this attention may be necessary several times during the growing season.

Plants in Tubs and Vases.—Plants growing in tubs for standing out-of-doors during the summer require a good deal of attention as regards staking and tying. Before they are placed in the open remove a few inches of the surface soil in the tub and top-dress the roots with fresh compost, adding a six-inch potful of bone meal to every bushel of the soil. All plants used for this purpose should be carefully hardened before they are placed in their summer quarters.

Among plants of a shrubby character that are used for this purpose Hydrangeas are first favourites. Large specimen Pelargoniums are commonly grown in tubs and vases, both zonal-leaved and Ivy-leaved varieties, as well as the scented or Cape Pelargoniums, some of the strong-growing species and varieties being very suitable for this purpose. A few of the best are P. crispum and its beautiful variegated variety, P. quercifolium, P. Radula, P. fragrans and P. tomentosum. Aloysia citriodora (Lemon-scented Verbena) also makes a good tub or vase plant. Datura sanguinea, D. suaveolens and D. Knightii are also handsome when grown in tubs as standards. Agaves are specially suitable for furnishing vases or standing in proximity to buildings or in formal surroundings. Apart from plants of a permanent character, there are many others that may be used for furnishing vases during the summer. They include Ivy-leaved Pelargoniums, Fuchsias and Marguerites. Thunbergia Gibsonii should be used for draping the edges of vases; in hot, sunny situations it produces its brilliant orange-coloured flowers in great profusion. Such plants may be placed direct in the vases when all danger of frost is past. It is, however, a great advantage if zinc receptacles can be provided that will fit into the vases. The zinc linings may be filled with the plants some months in advance and they will thus be well-grown specimens when they are put out.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Gooseberries.—These bushes broke strongly into growth early and gave promise of an excellent crop, but the severe frosts have ruined many of the tiny fruits and flowers. If the roots of the bushes were attended to at the time of pruning, and steps taken to destroy the larvae of caterpillars and other pests by removing the surface soil from beneath the bushes, dressing the soil with soot and lime, and applying a top-dressing of good, sweet soil and manure, little further attention will be needed at the present time beyond keeping down weeds.

Caterpillars.—Where these pests were troublesome last year, keep a sharp watch for their first appearance, and use measures at once to check them from spreading over the bushes. Caterpillars have been very troublesome in many gardens in late years. Lime or Hellebore powder should be dusted over the bushes and the latter syringed vigorously afterwards with clear water. Katakilla insecticide and other caterpillar washes may also be used in accordance with the directions given by the makers.

Raspberries.—Keep down weeds between the rows of Raspberries by the use of the hoe. If the soil has become hard on the surface, loosen it with a fork and apply a mulching of rotted manure over and about the roots. Raspberries have many surface roots and should be fed liberally on light land. Remove young growths springing up between the rows, and also dig up perennial weeds, especially such as Bindweed, which twines around the canes.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Spraying Wall Fruit Trees.—Plums and Cherries trained on walls are very liable to become infested with green fly early in the season, with the result that their young foliage becomes curled up, providing a safe retreat for the aphides. At the first sign of attack, or even as a precautionary measure, it is advisable to spray the trees with a reliable insecticide, such as Bentley's Orchard Spray, at the strength recommended for summer use, making sure that the specific is distributed evenly and with force, especially to those shoots which are close under the coping stones or under glass copings. Black and Red Currants are also very subject to attacks of fly early in the season, and they should also be dealt with before the pests have multiplied much. If the spraying of Black Currant bushes with lime and sulphur wash for the destruction of the mite which causes big bud has been regularly proceeded with during the past six weeks it may now be discontinued, as the mites, if any remain, will now be secure inside the young buds.

Staking Herbaceous Plants.—Many plants in the herbaceous borders are growing rapidly and such subjects as Paeonies, Delphiniums and Lupins should be supported in good time either by placing twiggy branches around and among them, or by stakes. The ideal method of staking this class of plants would be to thin the growths and place one stake to each shoot that is retained, after the manner of supporting specimen Chrysanthemums in pots. In these times of scarce labour speedier methods must be employed, and the branch system seems to answer the purpose admirably, as the plants are not only supported by them, but if the branches are placed in position in good time the foliage of the plants will effectually hide them.

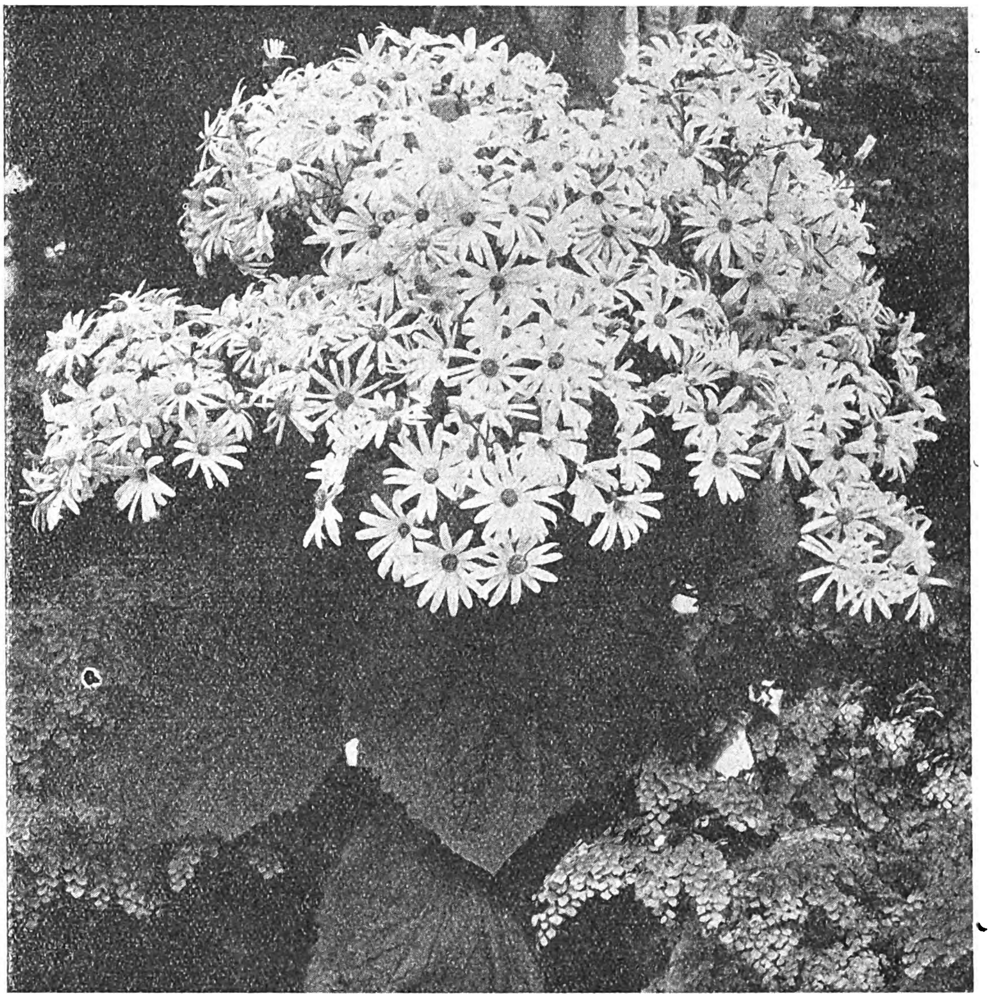


FIG. 159.—CINERARIA FELTHAM BEAUTY.

(see p. 336).

Stopping and Tying the Shoots of Vines.—The laterals of established vines are rapidly extending and filling their allotted spaces on the trellis. The growing plants should be pinched at two or three leaves beyond the bunch, and the shoots gently brought into the positions they are eventually to occupy. This drawing down of the shoots is sometimes attempted too early, and the results are fraught with disaster, as the young shoots are very easily snapped off at the heel, but if they are allowed to extend to a reasonable length and secured lightly by a thin strand of raffia at the proper angle, they may be brought into the desired position by degrees. Young and recently planted vines should be encouraged to make vigorous growth, and the stopping or pinching of these must also be attended to, but as a rule, they may be allowed to extend further before being stopped, as their root action is not yet very extensive. The main leaders should be fastened securely as growth proceeds, and no attempt made to curtail their extension for the next two months, when they will probably have reached the top of the trellis. Heavy syringing should be discontinued, but regular and copious damping down of the borders and gangways on bright days is necessary to secure a moist atmosphere. Close the ventilators early in the afternoons in order that the temperature may be kept fairly high for a long period.

Fruit Trees in Cool Houses.—Fruit trees, either in pots or planted out in borders in the cool orchard house, are swelling their fruits, and where the latter have set freely, timely thinning is essential. Trees growing in these conditions should not be overcropped, and it is better to have a few perfect specimens than a big crop of undersized ones. Feeding the trees should be attended to at regular intervals, varying the stimulant from time to time; where a rich top-dressing can be applied it will be of great benefit to the trees. Should the pots be already filled with soil and roots, additional space may be made for this top-dressing by placing bands of zinc or other metal inside the rims. Keep a close watch for insect pests and fumigate the house at intervals, as is found to be necessary, always remembering that insect pests increase with great rapidity at this season of the year. If the trees are growing in pots see that they have plenty of room for the light to reach them on all sides.

INDOOR PLANTS.

CINERARIA FELTHAM BEAUTY.

The plant illustrated in Fig. 159 represents one of a batch of fifty of this variety raised from seeds obtained from Messrs. Sutton and Sons. As my employer, Sir D. E. Nicholls, is fond of Cinerarias, we grow these plants somewhat extensively and rather pride ourselves on the results.

The seeds were sown in a cool frame about the middle of June, in a light, sandy compost, and so soon as the seedlings were large enough they were transferred singly to thumb pots and thence, in due course, to larger pots, taking care that no plant ever became root-bound. We flower our specimens either in twenty-four or sixteen-sized pots.

The compost used for the final potting consists of good, fibrous loam with the addition of a fair proportion of dried cow manure and a sprinkling of wood-ash, soot and old mortar rubble. When the plants are thoroughly established in these large pots they are fed with clear soot-water and liquid cow manure at frequent intervals, and Clay's fertiliser is occasionally used as a variation of diet. *H. Watkins, Fulmer Rise Gardens, Stoke Poges, Bucks.*

FITTONIAS.

The Fittonias belong to the Natural Order Acanthaceae and are included among the most beautiful of stove foliage plants, for their delicately veined leaves are decidedly attractive, and the plants themselves splendid subjects for cultivating in pans.

Three species are in general cultivation, *i.e.*, F. argyroneura, in which the leaves are green and the veins beautifully traced out in silver; F. Verschaffeltii (syn. F. Pearcei), which has very dark green leaves, veined and reticulated with red; and F. gigantea, a more vigorous grower than either of the preceding, with large leaves, green in colour and veined with pale red. The last species is not so fine as the other two from a decorative point of view. The Fittonias are natives of Peru, and are found wild in shady woods, consequently they should always be shaded from bright sunshine. A moist atmosphere is necessary for their well-being, and a warm temperature in winter essential, although during the summer they will succeed in houses without artificial warmth.

As previously stated, pans are the most suitable receptacles in which to grow Fittonias; they should be well-drained and filled with a light, rich compost, containing a small quantity of peat and sufficient sharp silver sand to render the texture porous.

The present is a suitable time to insert cuttings, choosing the tops of stock plants which are just breaking into growth. Plunge the cuttings in a propagating case provided with bottom heat until they are rooted, and then remove them to a shady position in the plant stove. An abundance of water is required during the growing period, and syringing the plants on hot days with tepid water will be highly beneficial to them. At the approach of winter the supply of water at the roots should be reduced and syringing discontinued. During the resting period keep the soil moderately dry and grow the plants in a stove temperature. *T. H. Everett.*

IMPATIENS HOLSTII.

This East African species of Impatiens is an ideal subject for the greenhouse and conservatory. Plants raised from seeds sown on January 13 commenced to flower on April 3; they have been grown in a steady temperature of 60°. They thrive in a compost consisting of two parts turfy loam, one part leaf-mould, and a little sand.

This Balsam is perpetually in bloom, the colour of the flowers being orange-scarlet. Later plants may be easily raised from cuttings; specimens flowering in sixty-sized pots are very useful for many forms of decoration. Diluted liquid manure should be applied to the plants when the receptacles become full of roots. This Impatiens makes a good bedding plant, provided a half-shady, sheltered position is selected for it out-of-doors. *C. Ruse.*

ALPINE GARDEN.

PRIMULA PUBESCENS.

Twenty or thirty years ago no good rock garden was thought complete without the inclusion of a good plant or two of the exquisite Primula pubescens alba, which was generally known then, and sometimes is still, as P. nivalis. It was then much more common and much cheaper than now. Its cultural requirements are fairly simple. It grows about four inches or five inches high and has umbels of white, fragrant flowers. Its general requirements would seem to be a cool corner in the rock garden and a good loam; in the north it should be exposed to a little more sun. It is increased by division, and to maintain a stock it is desirable to divide the plants every two or three years.

PHUOPSIS STYLOSA.

The Crosswort is one of the most easily-grown rock plants. The species is of somewhat trailing habit and grows only a few inches high. It has very narrow leaves in whorls, and wonderfully large heads, composed of a number of flowers of a bright pink, with conspicuous, projecting stamens which give the heads of flowers a light and elegant appearance. There are two or three varieties, differing in the brightness of their flowers. The one named Brilliant is of a deep pink or rose and creates a good effect in the rock garden. One defect of the Crosswort is the strong odour which the plant emits in the evening or after rain; the smell has been likened to that of the fox. The plant grows well in ordinary loam, but I consider that it is neater when cultivated in a poor, sandy soil, where it flowers equally as well as in a richer compost and does not spread so rapidly. Those who do not object to its odour and desire a long-flowering plant for a rough part of the rock garden in sun may select Phuopsis (syn. Crucianella) stylosa Brilliant. *S. Arnott.*

HUTCHINSIA ALPINA.

Hutchinsia alpina is a desirable plant for the rock garden. To be seen at its best it should be planted in fair sized patches, and it quickly becomes established if planted in a suitable position. The plant is exceptionally free-flowering and appears as a sheet of snow-white bloom during April, May and June, and it is seldom out flower through the summer. It attains a height of from four inches to six inches and bears cruciform flowers in clusters at the termination of short flower stalks.

As a carpet plant for such spring flowering bulbs as Chionodoxas, or the dwarf Narcissi it is an ideal subject.

Propagation is most easily effected by inserting small tufts in sandy soil in a cold frame. *T. H. Everett.*

FLOWER GARDEN.

ORECOME CANDOLLEI.

This is a fine foliage plant, probably more suited to the wild garden than the herbaceous border, although in extensive borders it is a useful subject for the background. This giant Umbellifer gives a fine effect to a clump of tall Delphiniums with its large, yet delicately cut leaves.

It is an accommodating plant and thrives well even in a sunless border and needs no staking. It is also perfectly hardy, nor does it tend to get out of hand by suckers or multitudinous seedlings, as is sometimes the case with similar subjects.

It is of particular value for associating with hardy Ferns, Funkias, etc., and seems to escape insect attacks and disease entirely.

PHLOX DECUSSATA VAR. COMTESSE DE JARNAC.

This is a very striking plant with richly variegated leaves and is always attractive, either when used in the herbaceous border or in a bed in conjunction with other subjects, such as Kochia trichophylla or Perilla nankinensis.

Its flowers are, perhaps, a little uninteresting, being white with a reddish-pink eye, but it is not too much to hope that some day we may have a variegated form with more showy blossoms. However, the existing variety is a fine, sturdy grower of average height and shows no marked preference for soil or situation. It is as easily increased as the ordinary varieties of Phlox decussata.

HYDRANGEA PANICULATA GRANDIFLORA.

This well-known Hydrangea is seen to the best advantage when planted in a bed by itself, when, with correct pruning and a liberal mulching around the roots so soon as the young growths are well started, it will form a feature that will command admiration from the end of July to the middle of September.

To obtain the best results, the plant should be cut back to within two or three buds on the old wood in spring, and the young shoots disbudded so that only a reasonable number is allowed to remain on each plant. During the summer, frequent applications of liquid manure will be very beneficial to growth.

Treated in this manner, shoots four feet to six feet long will be made each season, and these will be terminated by panicles of white flowers two feet or more in length. So soon as the flower heads appear it is advisable to support each with a thin stick, otherwise they are liable to be broken by winds and rains. *T. H. Everett.*

FLORISTS' FLOWERS.

THE DAHLIA.

In the *Year Book* of the National Dahlia Society, recently published (an interesting effort, by-the-way), a contributor of one of the articles suggests that numbers of varieties once esteemed might well be scrapped to make room for more of the accepted modern ones. An important grower also, in a recent letter to the trade journals, desires combination on the part of specialists for a similar purpose. This is an indication that many sorts in cultivation are not wanted.

Those who grow Dahlia plants for sale have the matter in their own hands, and if all were of the same opinion as the writer, one would not wait for the other, but make a start this year by simply dropping any variety not conforming to modern ideas. It may be there are still admirers of the old exhibition Dahlias, and the formal show type of the Cactus section, the more so, probably, in the midlands and the north; still, these forms are dwindling, as such, and appear to be left out by those who are in the habit of cultivating the newer varieties.

There is but one standard to-day, *i.e.*, adaptability to garden display. If then, it be desirable to destroy once esteemed varieties, it may also be as well to drop superfluous distinctions in descriptions. Why Show and Fancy, Cactus, Paeony, Miniature-Paeony, Star, Camellia-flowered? Short, tall-growing, double, single, large, small-flowered, are simple terms that cover the whole series of Dahlia, and might very well be used without further sectional descriptions.

In the culture of Dahlias, again, the methods of the old florists are taboo; we may neither thin the growths nor concentrate upon a few blooms to each plant. At Wisley, for example, where the new sorts are on trial, cultivation means just trenching the ground, putting a stake to each plant, and affording sufficient ties to prevent it from toppling over; and I believe last year water was not applied, other than what came from the clouds. I think no Dahlia can be considered as grown at its best without judicious thinning, and with very few exceptions, a better mass of bloom is obtained when soft, unripened and unwanted laterals are removed at flowering time. Many handsome Dahlias have failed at the official trials because this small attention has been omitted. Mr. H. C. Dresselhuys is a variety bearing exceedingly pretty, light pink flowers; is excellent as a plant, too, but is spoiled, to my liking, if allowed to grow and bloom at will. So is

Secretary Voors, similarly pretty in salmon-pink and gold, and like the first-named, has medium-sized blossoms.

Possibly the huge-flowered sorts suffer the most when growths are not thinned; anyway such sorts as Berengaria, Sheila Ward and Jersey's Beauty are unlike their best selves when cultivated in the fashionable natural manner. Mabel Lawrence, one of the biggest blooms seen at exhibitions, is comparatively poor at the trial; and so I could go on mentioning varieties, the beauty of which is enhanced by timely thinning.

Among dwarf, bedding Dahlias the distinct and popular Coltness Gem seems to defy improvement. Hundreds of seedlings from it fail in some respect as compared with the original. Perhaps Lady Aileen, rose, with carmine ring, is the best to date, although H. J. Jones goes some way towards being a fine, dwarf yellow. Capital grouping varieties are Pink Pearl and Crimson Flag; and the single-flowered Lemur is certainly one of the more distinct, as the almost black foliage affords a rare setting to the bloom; in fact, a group of this variety is something at once choice and pleasing in Dahlias.

Somewhat new sorts which arrest attention are John Mensing, crimson-scarlet; Menny Carlee, white, and Macdonald, orange-scarlet, the blooms being of medium size in each case. Larger flowers are borne by Uncle Dick, distinct in scarlet and white; Acme, with shaggy flowers of carmine and yellow, quite pretty; Cintra, pale yellow, is what may be termed a small-flowered kind; as is Diophen, in crimson-scarlet. I like another of this type named Rose Elegance, an improvement on that remarkable old favourite Delice. This is quite one of the more attractive of recent varieties. Rapallo, Clown, W. D. Cartwright, Rose Tendre, Royal Purple, Thomas Hay and Locarno, are just a few among the many new forms noticed this last year, and which will be included in the trials and may be seen growing there in due course.

The present type of Dahlia esteemed for the garden may be but a passing phase, but the good flower-stem is essential; we do, however, need something more distinguished in the way of the individual blooms, and this should come with time. The great army of cultivators referred to as amateurs—the backbone of the cult—require more than a plant which is effective. To sustain their enthusiasium in flower-growing for any length of time there must be a subject requiring care in regard to the details of watching, watering, shading and thinning to obtain size shape and form out of the common. My contention is that popular types to-day do not possess those necessary good qualities combined with elegance as did some of the varieties now under a cloud; but having once got the approved stem, raisers should see to it that other important qualities follow.

There are those who have an idea that the Dahlia will become as useful for cut-flowers as the Chrysanthemum. It may, but not until varieties are evolved which will last better in water. There is a likelihood of the tiny Pompon proving most useful for this purpose. It is strange, indeed, that these forms have been so poorly exploited hitherto. I daresay the writer has noted as many changes in connection with the Dahlia as most folk, from the time of Turner and Keynes; but who, even a score of years ago, would have thought of the eclipse of the old exhibition sorts? *H. S.*

FRUITING OF MUSA BASJOO IN FRANCE.

THE fruiting, in the open air, in the Paris district, of the Japanese Banana (Musa Basjoo, Sieb. and Zucc., or Musa japonica, Hort.) has been reported on several different occasions; for instance, at Verrières in 1906 (see *Revue Horticole*, 1907, p. 58), and at Melun, with M. Debreuil, in 1911. The phenomenon occurred at Verrières again, in the collections of Madame Philippe de Vilmorin, in August last year, and the photograph (see Fig. 160) shows that part of the inflorescence of which the development was not arrested by frost.

This inflorescence, recurved, with numerous brownish bracts which fall as elongation proceeds, was at that time sixty centimetres in length, and bore a number of small fruits seven or eight centimetres long—little miniature Bananas. Up to the present, the production of seeds in Musa Basjoo does not appear to have been recorded in France. We have tried unsuccessfully to fertilise artificially, although the pollen grains were perfectly formed (germinating well in a five per cent. solution of sugar) and only giving about ten per cent. of abortive grains.

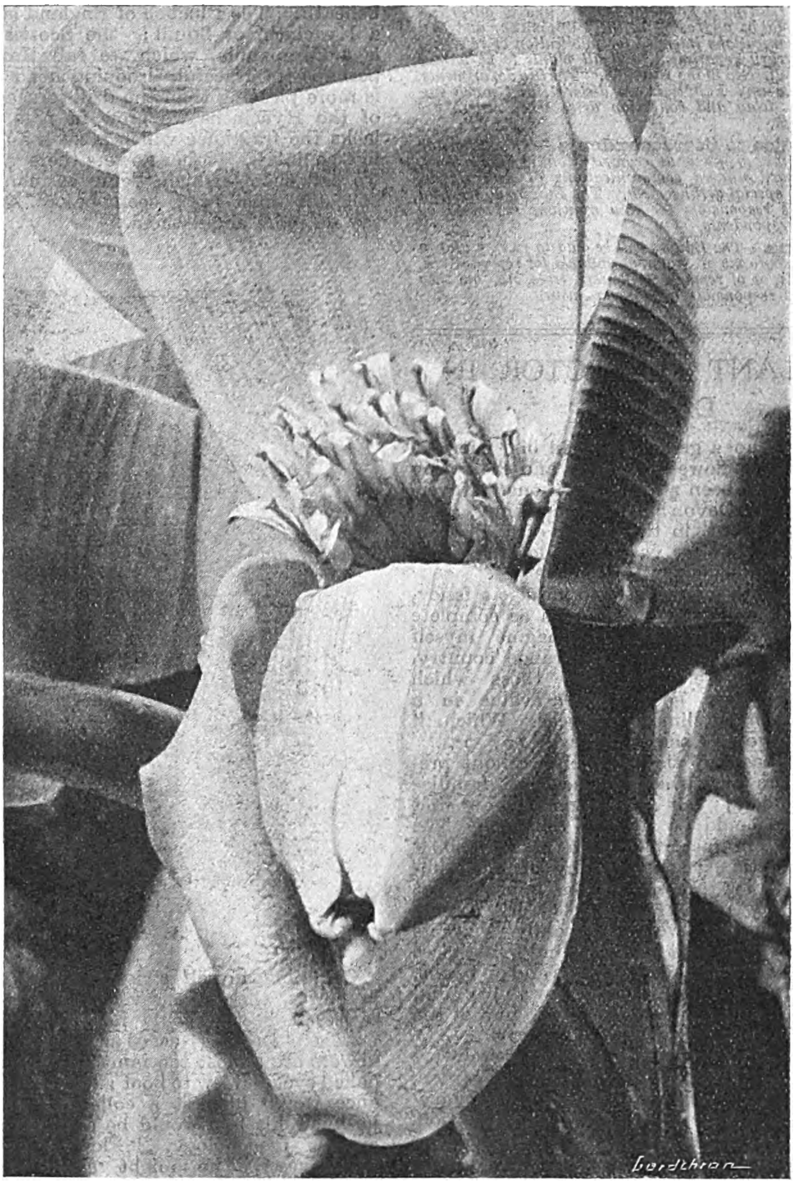


FIG. 160.—MUSA BASJOO FRUITING AT VERRIERES.

The Japanese Musa is found wild to the North of Japan (Island of Yeso, Hakodate). The region is said to be one of extremes of temperature, varying from 32°C. below zero, in winter, to more than 42°C. in summer; in winter there are sixty centimetres of snow, and the plant pushes up in the spring, putting forth suckers abundantly. The Japanese Musa was introduced into England about 1885 by Messrs. James Veitch and Sons, of Chelsea, plants having been received from their traveller, Mr. Charles Maries. The species was figured in the *Bot. Mag.* in 1891 (tab. 7,182) from a specimen which flowered and fruited in the Temperate House at Kew. Grown in the open air in England the plant does not seem to have succeeded well, probably because the summer temperature is too low the results obtained in France were much better. Immediately on the introduction of the species, the Messrs. Veitch sent plants to Thibault et Keteleer, the clever horticulturists of Sceaux, near Paris, and in 1889 it was put into commerce in France by Sallier, who succeeded Thibault et Kateleer. (See *Revue Horticole*, 1896, p. 202).

The Japanese Banana requires a situation protected from high winds which would damage the leaves, a rich soil, frequent watering during the summer, and, from time to time, applications of liquid manure. On the appearance of the first autumn frosts, the leaves are cut away close to the stems, the whole plant is wrapped in a covering of very dry leaves, and on the outside a hood of straw forms a protection from rain. As a matter of fact, it is the damp of the winter which is more to be feared than the cold.

According to the vigour of the stems, the leaves may attain to a size of two metres sixty centimetres wide; the suckers which develop each year form stems of varying shapes, and make up a very pretty picture, quite tropical in appearance, and not what one would expect in a temperate climate. Naturally, in the South of France the Banana grows to a larger size. Sahut formerly described some plants growing at Montpellier which were more than six metres in height, and the leaves of which were three metres in length. The species is cultivated in the South of Japan for its fibre, from which a coarse kind of cloth is manufactured. *A. M.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden W.C. 2

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand ; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER, *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc. but they cannot be responsible for loss or injury.*

A PLANT COLLECTOR IN DEVON.

THERE is not a great deal, even in "Glorious Devon" in flower by Easter, and the spring of 1927 has been a long-drawn one. Nevertheless, the deep Devon lanes, or the sunny, rock-bound south coast, in the middle of April, were memorable, if not for variety, at least for profusion of wild flowers.

It occurred to me recently to indulge a fancy, and viewing our wild flowers with as complete detachment as possible, to imagine myself collecting garden plants in a strange country, and, therefore, selecting only those which promised to give good garden value in a somewhat similar climate overseas. Which, if any, plants would I select, and why ?

It is not easy to view entirely without prejudice flowers with which one has been familiar since childhood ; but with regard to my first choice there could be no two opinions. The Primrose is, in fact, a garden plant, and it may be questioned whether any of the "improved" strains are really an improvement on the wild plant. The collector, finding the first Primrose would certainly sing its praises and report that he had found a first-class plant, but its abundance, in woods and on banks, would convince him of its adaptability and constitution, and incidentally relieve him of the necessity of marking plants.

Both the Dog Violet and Greater Stitchwort (Stellaria Holostea) would glorify any rock garden, the form and colour of the first, and the fairy elegance of the second at once attracting attention. The Violet is, of course, a popular plant, and we are only contemptuous of the second because of its familiarity. Gypsophila has ursurped its place. I think, too, that the common blue Speedwell (Veronica Buxbaumii) would be judged an annual of great promise, on account of its rich blue colour, though its small size, and what may be called lack of flower power, are against it. The collector might also remark its evanescence, but it has undoubted potentialities. Passing over the common purple Deadnettle, a white Allium, Stitchwort, and Lesser Celandine, a collector would find on the cliffs compact tuffets of Thrift, the stiff pile of the glaucous leaves just becoming studded with purplish pink buttons, and would vote it first-class on sight. On the short turf he would see also a tiny flowered Forget-me-not, but if the genus was unknown to him, he would hardly conjure up from it, by the aid of selection, the blue vision of our garden plants ; the common Hedge Arum also he would pass by, unless he happened to see it in scarlet fruit. A batch of poor flowers are : Herb Robert (Geranium Robertianum), which, though vivid enough to be seen, would anyway be dammed for its strong and rather unpleasant smell ; the insignificant Ground Ivy (Nepeta), wild Strawberry, and pink Catchfly, which is not colourful enough.

Although the individual Bluebell would hardly be received with acclamation by the discriminating collector, yet if he came upon mass production in a wood for the first time he would shout for joy. Therein lies one of the difficulties of judging plants ; circumstances and surroundings may enormously enhance the value of the individual plant. Perhaps the feeblest way out of the dilemma is to collect everything.

Few sights, even in England, are more lovely than when the sunshine filters through the first film of green foliage on to a blue carpet spread beneath. The Bluebell of England is, of course, a Hyacinth, or Squill ; the Scottish Bluebell is a Campanula, which we call Harebell, and perhaps its graceful, drooping head of flowers is more pleasing than the drill-sergeant stiffness of the Hyacinths we grow in pots, though it lacks the fragrance which is such an attraction in the latter. Other flowers there are—weeds, we call them—which, being cosmopolitan, the collector must have seen before, and I need say no more about them.

Confining myself strictly to plants actually in flower, there are several shrubs which the rawest collector could not pass by. Firstly, Butchers' Broom (Ruscus aculeatus). Its starry flowers are almost too faint to be seen with the naked eye, and few to boot ; but its queer appearance would interest a collector, who then, if he knew his job, would be eager to explain its curious morphology. "Flowers growing out of leaves ?" he might ask. "Impossible ! something wrong here." And after examining it, and solving the riddle of leaves and phylloclades, he might become almost endeared to its rather banal, but worthy qualities. It is not exactly a first-class garden plant, but it is attractive. Secondly, Blackthorn. Surely, a stranger would be hypnotised by that snowdrift illuminating the diffuse twiginess of the dark hedge, where neither leaf nor flower showed else. Its graciousness is short-lived, but it does fill a gap while it lasts. Thirdly, Wild Cherry. To anyone who had never seen a Cherry tree before, that would be a revelation ; it is almost the only tree in flower in the woods, and is equally beautiful in the open.

I have left the best till the last. It is very difficult for anyone who has spent his boyhood amidst Gorse, to be quite sane about it. One is in danger of saying either far too much, or nothing at all ; but to some of us neither Heather in Scotland nor Rhododendrons in Tibet have burnt their colours quite so deeply into the memory as have those flaming leagues of English Gorse. Perhaps, if one had to choose a single shrub out of all the known subjects, to plant in a garden, one would choose Gorse. Its glowing, chrome colour, its reckless generosity of blossom, the definite shape of its individual flowers merged by their profusion into a trim cloudiness, endear it to everyone, though so common is it that we rarely stop to consider what an astonishing object it is. No wonder the Swedish botanist, Linnaeus, stood spell-bound before it !

A few other flowers may be recorded : the blatant Dandelion, and the inept Nasturtium, or perhaps Cardamine, any or all of which would be ignored ; likewise the lowly, rather raw-coloured Pedicularis sylvatica, if only by reason of its greedy manners. The purple Orchis would appeal rather to the botanist, while, caught in two minds about the Ivy-leafed Toadflax (Linaria Cymbalaria) the collector might be inclined to risk his reputation and collect it ; he certainly would the fine blue Anchusa sempervirens.

But what world collector can claim that of the first thirty plants be found out in the spring of the year, half were garden treasures ? *F. K. W.*

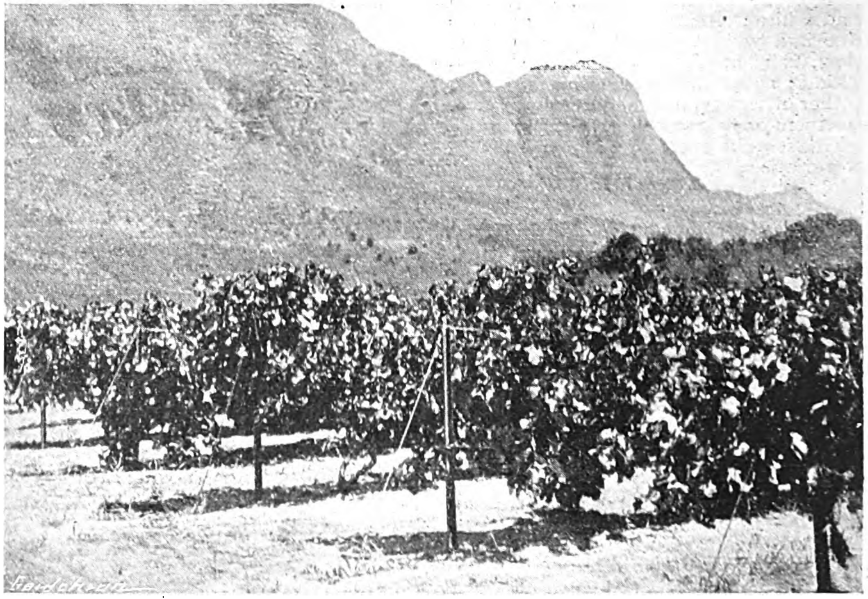


FIG. 161.—VINEYARD AT GROOT DRAKENSTEIN.

FRUIT GROWING IN THE WESTERN CAPE PROVINCE.

No fruit which reaches this country is more welcome than that which comes from the Cape soon after Christmas, and carries us through the Peaches, Nectarines, and Plums up to the late Pears, which finish the season in April or May.

The enterprise is due to the energy and imagination mainly of three men, Mr. L. E. Dicey, the pioneer grower in the Hex River Valley ; Cecil Rhodes, who saw that the phylloxera-ruined Grapes might be replaced by Peaches and other fruit ; and Mr. H. E. V. Pickstone, the well-known nurseryman, whose introduction of new fruits suitable for the country has crowned the work of the pioneers. After production, came problems of distribution, and the work of Griffiths and his collaborators has now made the cold storage at Cape Town one of the best in the world.

Most of the deciduous fruits grown for export is produced within a hundred miles of the Cape, and it is with this branch that I am concerned at present. Citrus growing, which promises to be of great importance in the future, is generally farther up country, and I regret that the time at my disposal did not allow me to see this. The climate and rainfall within a hundred miles of the Cape are surprisingly varied, and the elevation, too, is of great importance in its effect upon the different fruits grown.

In dry areas irrigation is, of course, necessary, but in the areas nearer the Cape, rainfall is sufficient without this. The temperature in the lower valleys is high in summer and autumn; at the time of my visit in March it reached 101° in the shade on one day, and it will be remembered that in such temperatures delicate fruits like Peaches and Plums are gathered and packed.

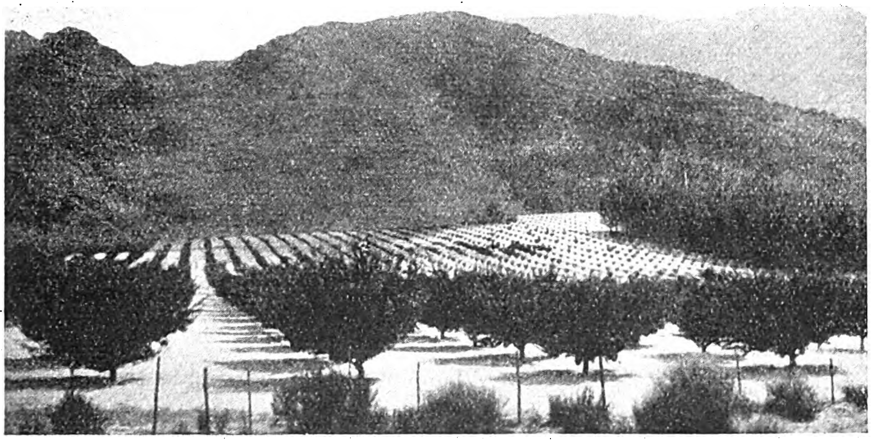


FIG. 162.—APRICOT ORCHARD AT GROOT DRAKENSTEIN.

GRAPES.

One of the oldest wine-growing districts is Constantia, near Cape Town, just behind Table Mountain, Constantia wine being well-known in former days. Here, nowadays, are grown many of the table Grapes for the English market. As one stands on the higher ground and looks down on hundreds of acres of these Grapes, all trained on wires about three feet from the ground, it is with a shock that one learns that these hundreds of thousands of bunches are all thinned by hand as in our glasshouses at home! The Cape coloured people who do all the horticultural work have learned to do it well, and, indeed, all the packing, grading, pruning, etc., is done by them, white labour being only used for supervision.

The varieties grown are in most cases familiar to European gardeners—Barbarossa, Waltham Cross, Black Monukka, Muscat of Alexandria, Almeria (Ohanez), Gros Maroc, Madresfield Court, Lady Downes, Muscat Hamburgh and Gros Colmar, are all found in varying quantities. The most popular, however, are the Red Hannepoot and White Hannepoot, commonly known as "Honeypots." The white variety is very similar to Muscat of Alexandria, but it seemed distinct to me, the berry being rounder and the leaf less deeply cut. The Red variety is also of Muscat flavour and travels well. These two varieties are probably of European or Asiatic origin having been brought out by early Dutch or Huguenot settlers.

Many varieties, new to this country, are on trial, and the most striking of these is Flaming Tokay, an enormous bunch of almost brick-red berries, a colour I have never seen before. Reine Olga (Chasselas Rose) is near to it, but duller and more rosy than this striking variety. We shall probably soon see this Grape on our markets in quantity as Cape growers are much impressed with its saleable appearance. As is well-known, a large acreage is devoted to wine Grapes, and a few of the standard European varieties are found, such as the Reisling, the "informing Grape" of the Hock wines, and also the Semillon, Verdot and Sauvignon.

Generally, however, we find that growers choose the Grapes for quantity rather than for quality, and this is probably one of the reasons that the Cape wines are not yet up to French standards of excellence. I did not see any of the Cabernet or Pinot Grapes, which are the mainspring of the excellencies of the Clarets and Burgundies of France. In place of these a variety called Green Grape, like our Sweetwater, and the Hermitage (not the Hermitage of Europe, which is a white Grape), are mainly grown and they are good croppers.

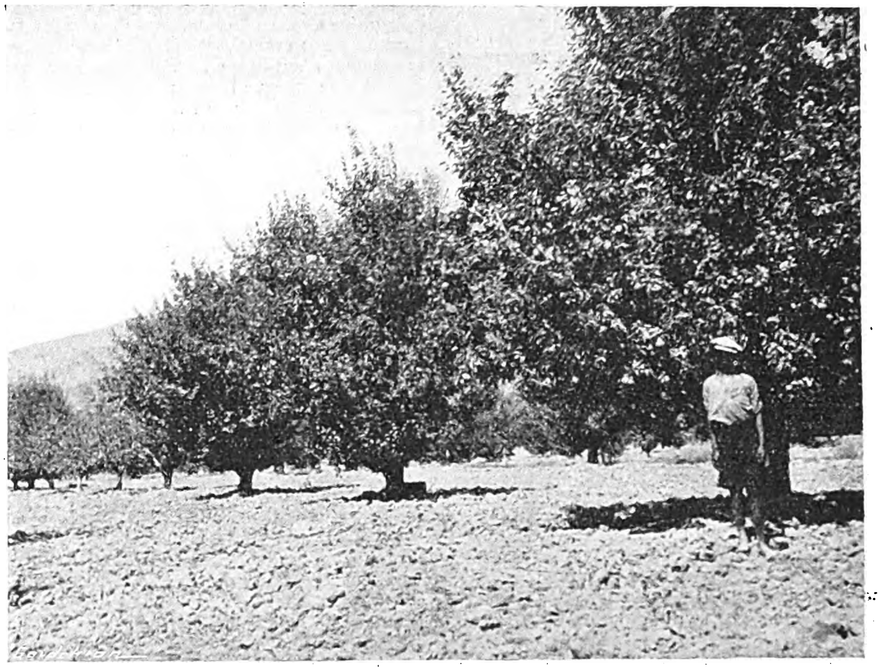


FIG. 163.—PEAR PLANTATION AT MR. DICEY'S FARM, HEX RIVER VALLEY.

Probably the main cause of the failure of Cape wine to reach highest standards is that the sun-heat is too great; the fruit ripens too rapidly and develops too much sugar, and the fermentation, not done in cellars as in many European vineyards, is too rapid in such high temperatures. The wine resembles, therefore, the rather rough hot wines of southern France and northern Italy, rather harsh and not keeping long enough to allow the more fiery particles to tone down with age. It is noteworthy that the world's best wines are nearly all grown somewhere near the northern limit of culture. The main centres of Grape-growing I visited were in the Drakenstein Valley (see Fig. 161), around Wellington, Stellenbosch and Worcester. The American stocks are used as resisting phylloxera, but there seems room for still further experimentation in this direction.

PEACHES AND NECTARINES.

The Peach crop is now of great importance, and this fruit revels in the hot sun and seems able to exist on a very small allowance of water. The growth of the trees is amazing to European eyes; I saw a one-year-old tree of Peregrine planted in September, which had in February reached eight feet in height and six feet in diameter, incredible dimensions to any one who had not actually seen it. Many of our English varieties hold a prominent place, and to the credit of Messrs. Rivers stand Peregrine in the first place, Duke of York and Early Rivers.

Native varieties of recent origin showing much promise are Schoongezicht, which was selected by the late Mr. Merriman from an old Cape variety; and a sport of Early Alexander, which is said to be a fortnight earlier than its parent. The Crimson Galande, Pucelle d'Orleans and Early Crawford are also grown, and Muir, a yellow-fleshed variety used for canning is found in large quantities.

Nectarines are also grown, Spenser, Stanwick, Newton, and Dryden being preferred, while Victoria is not thought more of in South Africa than at home.

PLUMS AND APRICOTS.

Next in importance come the Plums, usually known in England as Cape Plums, but which, as is well-known, are really Chinese and Japanese in origin, being descended from Prunus salicifolia, and not from P. domestica, as are our European varieties.

Kelsey is the most widely grown; this sort is well-known on the English markets and finds a sale because none better is available at the time. I had hoped that by tasting a Kelsey really ripened on the tree (when it is a dull red) I might be converted to this group of fruits. Alas! it was not so, none of them is more than second-rate; the best I tasted, Gaviota, equalled a Victoria, but nothing approaches our best Gages; rather one fruit of the Transparent Gage than a bushel of Kelsey's! The Apple Plum, another of this group, was over at my visit, but I was told it was the best of all.

A few English varieties are grown, such as Black Diamond, Pond's Seedling, "Pride of England," very like President, but it is generally said that the Gages will not do well. As, however, the usual stock for Plums is the seedling Peach, one wonders if this is not the fault, or, perhaps, pollenation?

Apricots are largely grown for drying, and the variety named Royal in California is the mainstay of most growers. The "Cape" Apricot, an old, rather stringy sort, is still found, while Blenheim and Moorpark are grown in decreasing numbers. A few Apricots are sent to England as table fruit, but they are not satisfactory; I imagine the trees are overcropped as I am told that the fruit does not swell out properly.

The most remarkable feature of Apricot-growing is the small amount of water the trees will exist upon. White, dry sands, which even with our rainfall we should deem hopeless, produce large crops of fruit suitable for drying, and some four to five bushels per tree are often produced on bushes planted about twenty feet apart (see Fig. 162). The trees suffer from "die back" as at home, showing that it is not our colder climate which causes this serious trouble.

PEARS.

The principal varieties of Pears grown are Williams's Bon Chrétien, Beurré Bosc, Glou Morceau, Winter Nelis, Clapp's Favourite, Josephine de Malines, Keiffer and Doyenné du Comice. One also sees in small quantities Beurré Diel, Beurré Superfin (this sort is reported to be a poor cropper), Flemish Beauty, Lawson and Durondeau. Whether grown on irrigated land or in districts where the rainfall is sufficient it is a custom to plant about twenty feet to thirty feet apart, and the trees make handsome bushes. The quality of the fruit is not quite up to our best, but Williams' is quite good, and some of the later varieties, such as Winter Nelis, often excellent. There is, however, a great need for some method of determining the right time to pick Pears, as it often happens that of a dozen purchased in this country half will never come to maturity, and remain hard and uneatable. It was interesting to hear that even on irrigated farms the trouble of autumnal blossoming not infrequently follows late summer irrigation, as it often does in this country after heavy autumn rains. *Edward A. Bunyard.*

(*To be concluded.*)

THE CONTROL OF SOIL ACIDITY BY ALUMINIUM SULPHATE.

There are many of us who, although cursed by the presence of lime in the soils of our gardens, would fain grow Rhododendrons, Heaths and other Ericaceous plants, not to mention certain Liliums and other bulbs and shrubs which are definitely calcifuge.

It is, perhaps, unnecessary to mention here how often failure follows attempts to create peat pockets and beds for plants such as the above—all goes well for a year or so, and then the plants begin to sicken, cease to flower, and either drag on a miserable existence or die.

If the soil is examined a year or two after the making of such beds, it will be found to contain lime and to be alkaline in reaction—this condition is, in my opinion, brought about by two factors: first, the use of hard, lime-laden water; and secondly, by the action of worms which carry in the native lime-containing soil from the bottom and sides of the beds. It is, of course, possible to make the beds on the principle of a concrete box, with a drainage of a thick layer of well-rammed ashes and clinkers, but even this does not remove the necessary occasional use of tap water, which, by itself, will make the soil unsuitable for Ericaceous plants.

As a matter of fact, the happiness of such plants really depends on the reaction, *i.e.*, *acidity* of the soil rather than on the presence or absence of lime; certain forms of lime, *e.g.*, hard Yorkshire and Purbeck limestone are almost innocuous, being only very slightly soluble in water, whereas chalk and mortar are most decidedly inimical to the plants under consideration.

The acidity or alkalinity of a soil has a very marked effect on the decomposition of its constituents; pure peat consists of a mixture of generations of leaves and fine rootlets, and does not lose its appearance and composition for many years; its reaction, moreover, is acid. Garden vegetable refuse, leaves and manure, are alkaline in reaction and, as is well-known, quickly decay—they are not good additions to soil intended for Ericaceous plants, but Beech and Oak leaves, if lime-free, are an exception to the rule, as they decompose slowly and are of an acid reaction.

It had often entered my mind to try the effect of very weak hydrochloric acid on soils containing a small amount of lime in order (1) to render it acid; and (2) to convert the lime into the very soluble calcium chloride which would be washed down or leached away by subsequent waterings with rain-water. I was never quite brave enough to try the experiment which, incidentally, would have required a good deal of care and more watching and note-taking than I have time for.

A few weeks ago my attention was drawn to some extraordinarily interesting work done by Mr. Fred Colville, and reported in *Bulletin I* of the American Horticultural Society, which is my excuse for these notes and from which I have culled the following statements of experiments made on Ericaceous plants. Mr. Colville had heard that magnesium sulphate (Epsom salts) had a beneficient effect in rendering alkaline soil acid; he consulted a friend who was a horticultural chemist and the latter said he thought that aluminium sulphate would produce the same effect and do it better.

Experiment No. 1.—Eighteen seedling plants of Rhododendron catawbiense were placed in small pots in a compost of sand, decomposed cow manure and soil containing lime. Six of these plants were merely watered with rain water; six were given weak doses of magnesium sulphate; and the remaining six were treated with aluminium sulphate. After three months the untreated plants were stationary, those treated with magnesium sulphate had grown fifty per cent, and those treated with aluminium sulphate had grown 250 per cent. Sixteen months later the untreated plants were all dead; those which had received magnesium sulphate were stationary; and those treated with aluminium sulphate were many times their original size, and in every respect equal to plants grown in peat.

Experiment No. 2.—Eight established plants were potted up in ordinary garden soil in two-inch pots and received ordinary care for one year; they had stagnated and looked sickly the whole time. Four of these plants were each given half-a-gram of aluminium sulphate; after seven weeks they had made slight growth, while the four untreated plants were stationary. A week later the treated plants were each given another half-gram of the sulphate. Eleven weeks after the experiment commenced the treated plants had grown 65 per cent., and looked green and healthy; the untreated plants had assumed a very sickly, brownish colour. Aluminium sulphate given to peat-grown plants produces no effect; it cannot, therefore, be said to have acted as a fertiliser in the above experiments.

Most of Mr. Colville's experiments, and results, are illustrated by photographs which add great value to the text.

When using a solution of aluminium sulphate for the purpose of acidifying the soil, the early "leachings" or filtrates from the pots contain very little aluminium, but much calcium sulphate; the water is, moreover, alkaline at first, but becomes acid as the treatment progresses. For those who are unversed in chemistry it should be explained that the aluminium sulphate combines with the lime (calcium carbonate), forming aluminium carbonate and calcium sulphate, which latter is "leached" away during the subsequent waterings, so long as soft water is used. It is also claimed that the acidity thus produced is permanent—provided always that the plants are not watered with a hard, lime-containing water, but even so, the damage done may be rectified by an occasional watering with aluminium sulphate.

It is suggested that large, established plants should be top-dressed with half-a-pound of aluminium sulphate per square yard, and a warning is given that this treatment in a mixed border would not agree with lime-loving plants. I presume, however, that no one would be so optimistic as to try growing both sets of plants in the same bed.

The reaction of a soil is easily tested with a solution of bromethyl blue. The drainings from a pot—or a sample of the soil—may be shaken up with soft water; the water is poured into a white dish, and a drop of bromethyl blue is added. If the blue colour persists, the soil is alkaline, presumably containing lime; if the drop becomes green, the soil is neutral in reaction; while a change of the solution to yellow denotes acidity—the condition we are working for.

There is now before us an opportunity of thoroughly testing the efficiency of aluminium sulphate, and there are few gardens which do not possess at least a few pot-grown plants of Azalea indica, amoena, etc.—even in the best-managed establishments I have noticed that many of these plants, although they flower well, look sickly and are suffering from "chlorosis."

If these notes are the means of saving the lives of a few of the thousands of pot-grown Azaleas and Ericas which are annually killed through the agency of hard water, they will, I venture to think, have served their purpose, but I have hopes that the use of aluminium sulphate will enable us to do a good deal more than this, and to succeed where we have previously failed with plants in prepared beds. *Maurice Amsler, M.B., Eton.*

TULIPS IN HYDE PARK.

A large, serpentine border near the Victoria Gate, Hyde Park, is planted with some 40,000 Tulips in about 150 varieties, and those who have the opportunity to visit this famous London Park before the flowers are over will be amply rewarded by the grand spectacle of this enormous number of Tulips in bloom. The Tulips are growing in the forefront of a small shrubbery border and show to great advantage against the beautiful spring foliage of the shrubs. The majority of the varieties are now in their full beauty, but several sorts are still in the bud stage, whilst some of the earliest are just getting over.

The Tulips consist mainly of Rembrandt, Cottage, Darwin and Breeder varieties, the great majority being of the Darwin section. The Rembrandt Tulips are Darwins which have broken into a variegated flower, and of these much the finest is Flamboyante, with flowers feathered with violet-purple and maroon on a white ground. In stature and vigour generally this sort exceeds all the others of its type, of which the next best are Van der Heede, scarlet and white, and Pierette, mauve and crimson on white. There are a few of the section known as Lily-flowered Tulips, so-called from the shape of their flowers; this is a very early-flowering section, of which Adonis, Sirene and and the very dwarf Artemis are examples. The border also contains examples of Gesneriana Tulips, such as Gesneriana spathulata, a beautiful orange-scarlet colour and G. ixioides, a rich yellow variety. We also noticed several very fine Cottage Tulips, of which Boston is one of the finest in the collection. This variety has been flowering for a very long time, for it is one of the early sorts, and produces big goblets of pale salmon-pink edged with yellow. It is one of the most robust of all and has exceptionally stout stems. Astoria is another big goblet-shaped flower with stout stems, but it is a little dwarfer than the last and from its several qualities, including earliness, it should be valuable for spring bedding. The colour is pink shot with purple on a white ground.

The favourite Bouton d'Or is giving a good account of itself amongst so many others. It is a lovely flower of perfect shape and rich golden colour; moreover, the large number of plants of this variety are all uniform in height; it is a variety of medium stature. Another golden variety named Golden Crown is also making a good show, and this has very much bigger blooms than Bouton d'Or. The early-flowering Missouri has been out for the past three weeks, and even although it was fading at the time of our visit it still looked very imposing. The season of flowering of this Tulip is in striking contrast to that of the adjacent Herbert Spencer, which is only just in bud. Professor Tendeloo has attracted great interest from visitors because of its rosy-magenta colour with a deep cream edge, making in the mass a very striking display. Grenadier is a good colour—orange-salmon—but the plants are not flowering at all uniformly. The height of this Tulip is about twenty inches. Inglescombe Scarlet was not yet in bloom on the date of our visit and must be included among the late sorts, but Inglescombe Pink, or Salmon Queen, as it is sometimes called, was in full beauty.

The Darwin varieties are making the finest show, and they are the most uniform in their season of flower, although, of course, some are earlier than others. For instance, Baronne de la Tonnaye was not nearly in bloom. Amongst the great wealth of this section it is not easy to make a choice, but the following sorts may be regarded as some of the best; Margaret, with very dainty, globular, rich pink flowers, paler on the outer side, a variety of dwarf habit; Sir Joseph Hooker, one of the best of the dark red Tulips; Marconi, one of the biggest and best of the maroon section, much more massive than The Sultan, and taller in stature; Madame Krelage, one of the tallest of the varieties, but not quite so tall as Sir Trevor Lawrence; Professor Suringar; Sir Harry Veitch, still one of the best of the dark, velvety-red Tulips and excellent in every respect; Centenaire, deep pink; Venus; The Bishop, purple-blue, quite the best of its colour; Pride of Haarlem, one of the grandest of all the Darwin Tulips, of cochineal-carmine colour; Versailles; and Painted Lady, a tall, white variety spotted with pink.

The Breeder varieties show great variation in their season of flowering for while some are in full bloom others are only just in the tight bud stage. Of these we selected Aspasia, Chestnut (syn. La Négrette), a mahogany-coloured variety with a satiny sheen, and paler in the centres of the outer segments, which are edged with gold; Panorama, a fine red Tulip; Lord Byron, scarlet-cerise; Bacchus, a very striking purple colour; Mon. Trésor, and Louis XIV.

THE GOLDEN-8 MOTH (PLUSIA MONETA).

Now is the time—to borrow a famous phrase—for the gardener to examine the tops of the shoots of his Aconitums and Delphiniums to see if the leaves have an unnaturally tufted or drooping appearance. Should he be at all suspicious that all is not as it should be, let him very carefully separate the twisted and confused-looking foliage and he will probably find amongst it a snug little cavity containing a small, greenish-grey caterpillar, plentifully studded with black spots. This little creature is the young larva of the above moth, which I believe to be the only one of the gardener's insect enemies that does any material damage to his Larkspurs and Monkshoods.

The Golden-8 and the very common, but really beautiful, Silver-Y (Plusia gamma) are members of a large and handsome genus of moths, of which many of the species, including these two, are characterised by a strong tendency to emigrate from the places of their birth and spread over the face of the earth, and records show that the subject of this note has so spread in about fifty years from Russia westwards right across Europe to the shores of the Atlantic. Although it has been common in France and Germany for many years, it was not known in Britain until 1857, when two specimens were captured in Kent and remained for nearly forty years unidentified and unrecorded. In June, 1890, however, an extensive immigration of the moth from the Continent must have taken place, for it was made known by the capture of specimens at Dover, Tunbridge Wells, Reading and Cambridge in June, July and September of that year, and from then up to now it has established itself over practically the whole of England and Wales, and can be found more or less commonly wherever the food plants of its larva occur in a wild or cultivated state; but I know of no records from Scotland, Ireland, or the Isle of Man, and shall be glad to be informed of any, with place, month and year of capture. The moth flies in May, June and July at early dusk—say, about 9.30 to 10 p.m. (summer time)—and visits the flowers of its food-plants, as well as those of many other plants for their nectar, which it sucks whilst hovering before the flower. It deposits its cream-coloured eggs in the flower-heads, either amongst the buds or actually on the petals of the open flowers, and in about a week the young larvae hatch and begin to feed amongst the buds and flowers or young seed-vessels. The larva at all ages crawls, like the rest of its congeners, with some arching of the body, but this is not so marked as in the slimmer larvae of the Geometer moths.

The newly-hatched larvae are, of course, very tiny, and rather maggot-like, with brownish heads and pale bodies dotted with black. They grow very slowly and later feed on the seeds in the capsules; if it is an early season and a favourable summer, they may reach maturity in August to emerge as moths of a second brood in September; but this is not usual in Britain, and the half-inch, young larvae, therefore, go down the hollow stems of their food plants and pass the winter in these at or below the surface of the ground until the plants begin to shoot up again in the spring. Then, in March or April, according to season, the larvae come up and begin to make their little "nests" in the tops of the shoots, and in these they live and devour the buds and neighbouring leaves until their last change of skin, after which they emerge from their cubicles of a clean pale green with a whitish line along each side and feed quite exposed on the leaves until they are fully grown.

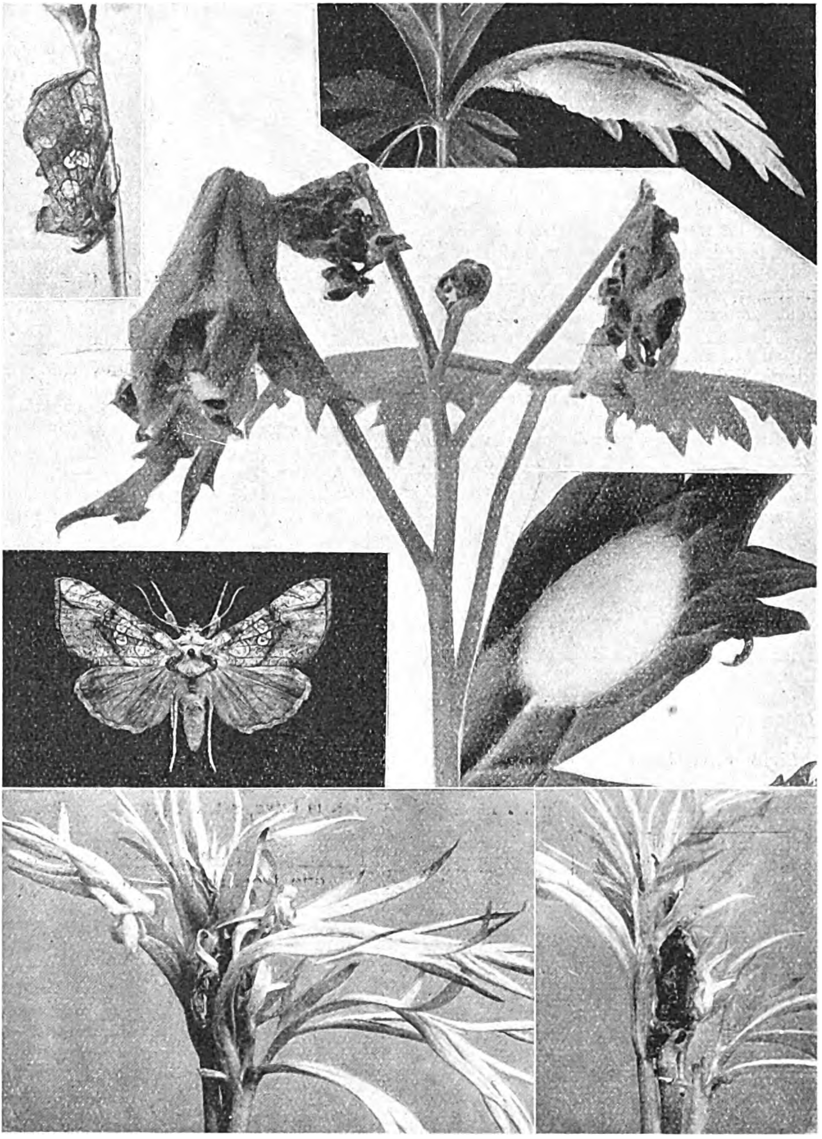


Photo by Hugh Main, F.E.S.

FIG. 164.—THE GOLDEN-8 MOTH (PLUSIA MONETA).

1, "Nests" of larvae on Delphinium shoot; 2, "Nest" on Aconitum shoot, outside; 3, "Nest" on Aconitum shoot, inside, showing young larva; 4, Full fed larva preparing to spin its cocoon; 5, Cocoon on underside of Delphinium leaf; 6, Moth recently emerged; 7, Moth displayed. All natural size.

By this time the lower leaves of the plants have turned yellow, the larva descends to within about a foot of the ground, and spins a cocoon on the underside of a leaf. This cocoon is boat-shaped, about an inch long and half-an-inch wide and is at first white, but the moisture in the air soon causes it to turn to a bright canary-yellow, and it is by no means easy to see unless the leaf is turned over. At one end of it is a transverse slit through which the moth will emerge. The larvae turns to a green pupa with an intensely black streak along the back, and this stage lasts about three weeks. After the moth has emerged and its wings have fully developed it closes them over its back and rests head downwards on its support for a time, but later turns head uppermost, stretches its two front legs straight out at right angles to the axis of its body and clings with these and its two hind legs, the middle pair being pressed close to the body. In this curious pose it looks just like a discoloured and curled leaf and is not at all conspicuous.

The colour of the fore-wings is a golden-grey with a brown bar across the middle and a brown line near the tip. The spots in the centre are shining, golden, with brownish centres and in some specimens resemble two tiny gold coins; whence the name, moneta. There are other marks and shadings on the wings which are impossible of description, but give them a somewhat netted appearance. The hind wings and other parts of the moth are yellowish grey, and there are wonderful crests of long scales on the thorax between the roots of the wings.

Altogether this insect is beautiful in different ways in all its stages and is worth the little trouble necessary in rearing a few; but, of course, most gardeners will be disposed to take the very material view that as an enemy it merits immediate death.

I am indebted to my friend, Mr. Hugh Main, for the excellent illustration, reproduced in Fig. 164, and to Messrs. Benham and Co., of Colchester, for courteous permission to use the block. *C. Nicholson, F.E.S., 35, The Avenue, Hale End, E.4.*

MARKET FRUIT GARDEN.

It was the driest April since 1921. The rainfall in my district was only 1·87 inch, most of which fell during the first nine days of the month. Then followed about a fortnight of glorious weather, during which Plums, Pears and Cherries came into bloom. The two last made a fine show; and Plum blossom was more plentiful than might have been expected after last year's crop. The season being normal, or slightly late, a satisfactory set was hoped for with some confidence. Unfortunately, the frosts of the last week of April, which were unusually severe for this southern district, destroyed most of the bloom of several varieties of Plums, notably Victoria and Pond's Seedling, both of which showed fine promise. Pond's Seedling was particularly full of bloom, and, as the trees have not carried a heavy crop for several seasons, the prospect seemed bright till the disaster occurred. Rivers' Early Prolific and Czar, which bloomed earlier, and had probably got past the most dangerous stage, appear to have escaped injury; and it looks now as though these, with possibly President, will be the only varieties in my plantations to furnish much of a harvest. Monarch carried scarcely any bloom, and Belle de Louvain only a little. Pears and Cherries were not harmed so far as could be seen. As the frost was most severe on the ground, the fate of bush fruits will be watched with anxiety. Whitesmith Gooseberries were badly cut and lost practically the whole of their fruit. Careless, growing in the same plantation, escaped with nothing worse than slight bronzing of the berries. Black Currants, which are showing great promise, were apparently unharmed, though it remains to be seen how much of the fruit will set. Indeed, the full toll of these frosts has yet to be realised. Apples were, presumably, too backward to be in danger, Beauty of Bath being the only variety in full bloom by the end of the month. Nearly all commercial varieties will bloom profusely, and the trees look healthy at the time of writing. Most kinds were still in the pink bud stage when the frosts occurred.

INSECT PESTS.

So far, insect pests are not plentiful. Aphides are very scarce indeed. The pest most in evidence is Apple sucker, which is rather more abundant than usual on unsprayed trees. In my own plantations, sprayed with tar distillate winter wash at only six per cent. strength, this insect is entirely absent, the only pest found amongst the bloom clusters being a very few caterpillars. On Plums there are rather more caterpillars, mainly Tortrices, which are evidently not completely controlled by tar distillate at this strength. I do not think, however, that any further spraying for insect pests will be required. Apple blossom weevils were noticed amongst the blossom buds early in the month, and will probably have had a good opportunity to do the maximum of harm owing to the long period during which the trees remained in the bud stage. However, the bloom of Apples will be so abundant that some of it can well be spared.

SPRAYING AGAINST APPLE SCAB.

Splendid conditions for the pre-blossom spraying for the prevention of Apple scab occurred in the fortnight around Easter. The weather was calm and fine, and the work was concluded with scarcely a drop of rain, an exceptional experience. It was found necessary to go through the plantations twice, as Beauty of Bath was so much more forward than other varieties. The normal Bordeaux mixture (8-8-100) employed caused no injury beyond a check to the development of the leaves surrounding the bloom buds in the case of the variety just named, which seems to be more sensitive to fungicides even than Cox's Orange Pippin. There was no scorching, but the trees of this variety looked less leafy than those left unsprayed. In one plantation I tried lime-sulphur at a strength of one in forty, which, in trials carried out at various places in recent years, proved quite safe when applied before blooming. In my conditions it certainly is not, for it caused a good deal of marginal leaf scorch with several varieties. Experimenters are rather given to reporting "no scorching of any economic importance"; but I doubt whether we should disregard any injury to the young leaves surrounding the bloom clusters, as the tree needs all the asistance it can get to enable it to set a good crop. Having completed this first spraying in such ideal conditions, there should be a good prospect of a satisfactory control of scab this season. I could find no trace of the disease on the leaves up to the end of the month, except in the case of an unsprayed tree of Siberian Crab in my private garden, which is always the first to exhibit scab.

CULTIVATION DIFFICULTIES.

Pressure of work at certain seasons often prevents one from doing all operations at the best time. The period during which all hands were required for spraying would have been most favourable for horse cultivation and hoeing, especially amongst bush fruits. Very little of this work had been attempted before, owing to the sodden state of the ground during March and early April. What little was done early might almost as well have been left undone, as the heavy rains panned down the soil again. Drying weather, when it did arrive, came too fiercely and lasted too long. The sodden soil dried harshly and, at the time of writing, is so hard that it can scarcely be touched with any implement. My soil, being composed of very fine particles, and naturally lacking in humus, is much given to panning down into a hard state, no matter what is done in the way of ploughing or digging during the autumn or winter. The only remedy that I have found is the obvious one of giving repeated dressings of farmyard manure or some bulky organic substitute such as wool shoddy. On a large scale it is difficult to do enough in this way to affect the texture for any length of time. Under clean cultivation the humus quickly disappears, nothing being visible of an ordinary dressing of farmyard manure at the end of a year. The soil works best for a year or two after the breaking up of turf. I find that, when I grub part of a plantation which has been under grass for some years, treated by the sod mulch system, which obviously enriches the soil in humus, it works well for a time, and gives bush fruits and young trees a fine start. It is distressing to see the land hard and cracked; but a few showers, which are not likely to be long delayed, will enable rapid progress to be made with cultivators and hand-hoes. Fortunately, weeds have made little headway so far.

PACKING PLANS.

A good many progressive growers have been packing Apples in boxes for several years, but it was not until 1925 that the packing stations increased the supplies of boxed English Apples sufficiently for them to have a definite influence in the markets. Now, with more packing stations in operation, boxing assumes even greater importance; and it seems likely that growers who wish to keep their reputation for good packing will be obliged to adopt the system. A representative of a leading firm of salesmen, who called on me recently, was very strongly of this opinion. I have for some time boxed some of my best dessert fruit for the London market, and, should this season's promise of a good crop be fulfilled, I shall make preparations for the increased use of this package. In addition to the standard bushel box, there is the newer half-bushel box, which is very attractive for dessert fruit of high grade. This is not the original flat half-box, but one measuring 14½ × 9 × 9 inches inside, just the same shape as the bushel box and taking the same diagonal packs. For the very best selected fruits of choice varieties, the single layer tray or Peach box remains the best package. Nested in wood-wool in these trays, Apples and Pears are presented in the finest condition. The grower need not, however, purchase his own non-returnable trays, since most salesmen are willing to supply Peach boxes for this purpose. For the bushel and half-bushel boxes, large labels to paste on the ends are needed. Growers who hope to establish a reputation in the markets will find it worth while to have a label designed for their special use. *Market Grower.*

VEGETABLE GARDEN.

RHUBARB.

Rhubarb grows best in deeply-worked, rich soil, and in common with other permanent crops, it pays to prepare the site thoroughly in the first instance. Although the plant luxuriates in moist and cool situations and will tolerate slight shade, stagnant water at the roots must be guarded against.

The common method of propagation is by root division, and when forming a new plantation planting is best done just as growth commences, usually about the end of February or early in March. Propagation may also be effected by seeds.

The first season after planting every encouragement should be given the plants to make as much growth as possible, little attention being necessary beyond keeping the ground clean. A catch crop which does not interfere with the maincrop may be intercropped between the rows the first season.

Most varieties are profuse flowerers, an exception being The Sutton, and all flower-heads should be removed so soon as they are detected. Each winter the crowns should receive a dressing of strawy manure which, when the winter rains have washed the manure into the soil, will consist of practically clean straw, and when this is loosened early in February, will afford a little protection to the young leaves.

When, and how, to gather the stalks is a question worthy of consideration. Nothing except the flowers should be removed the first season after planting, and the following year the quantity of stalks gathered will depend on the strength of the plants; none should be removed if the plants are at all weak. The correct twist to give the stalks when gathering them to prevent the crowns from being removed is not without significance. A large number of leaves should not be harvested at one gathering, and more should be allowed to develop before a second batch is removed. Gathering should cease about early August to allow time for the plants to make plenty of leaves before going to rest. Where Rhubarb is specially required late in the season, a few plants may be reserved for this purpose, and these should not be used for the earlier supplies.

With fair treatment and periodical feeding, a bed should last in good condition for several years. It is advisable to make a new plantation so soon as the old one shows signs of deterioration

Forced Rhubarb is in great demand from Christmas to about the end of February, and the plant is amenable to forcing and easy to manage. Forcing may be divided into two distinct methods: (1) lifting the roots and placing them in any suitable structure where a temperature of about 55° to 60°F. can be maintained; (2) covering the crowns with strawy manure in the position in which they are growing. The latter method may be more correctly described as "forwarding," and may be conveniently adopted following the period when the forced supplies are available and before the natural supplies from the open are ready.

The crowns selected for forcing should be strong and, for preference, specially grown for the purpose; that is, have had no leaves removed the previous season. For earliest forcing, lift the roots when the leaves have died down in autumn and allow them to remain exposed on the ground where they can receive the beneficial effect of a few degrees of frost. All manner of structures may be utilised for forcing, provided a warm temperature can be maintained and sunlight excluded. The crowns may be stood closely together and a little fine soil should be worked between them and watered in.

Roots in the open, covered with special pots, deep boxes or barrels, under a good thickness of fermenting materials, will furnish leaves early in January. Gathering should be possible by this method in about four or five weeks. It is not necessary to grow a large number of varieties in private gardens, but it is desirable that at least one should be early. One of the earliest is Mitchell's Royal Albert, and others of superior merit are Hawke's Champagne and Daw's Champion, both of which follow very closely on the first-named.

Where a succession of varieties is desired, Linnaeus and Victoria should be selected. The Sutton is a most attractive and valuable mid-season variety. For forcing purposes, Hawke's Champagne and Daw's Champion are the best. In a trial row in progress here, about thirty distinct varieties are represented. *J. Wilson, Wisley.*

HOME CORRESPONDENCE.

Effect of Shade on Apple Scab.—An interesting observation is made by Mr. E. Brown (p. 305) who finds that trees that are shaded during part of the day are less subject to scab than those that are fully exposed. I have never noticed whether this is the case in my plantations, but shall have plenty of opportunity to do so during the coming season if the disease is troublesome. I am entirely in agreement with him that exposure is no remedy, in spite of all that is said about the benefit of light and air. This is shown by the fact that young trees, planted wide apart, and not nearly filling their spaces, are often badly affected with scab. Last season trees in a plantation consisting mainly of Cox's Orange Pippin, eighteen feet apart, in their third year from planting, were very badly scabbed on the young wood. *Market Grower.*

Pear Verulam.—I was much interested in Mr. J. Arnold's article on the above Pear (p. 288) and to learn that his experience of the regular cropping powers of the variety coincides with that of Sir James Bruton. It is unfortunate that such a prolific variety should produce fruit of only second-rate quality, for although Sir James Bruton's Pears, which are grown on a wall, are acceptable in the New Year if there is nothing better available, Verulam cannot be placed in the front rank of dessert Pears by any means. Few people, I venture to state, have previously heard the story of the origin of Verulam Pear as told by Mr. Arnold, and if we had the histories of many of our well-known Apples and Pears they might be equally as interesting if not so romantic. *G. H. Hollingworth.*

SOCIETIES.

NATIONAL AURICULA AND PRIMULA.

April 26 and 27.—The Southern Section of this old-established Society pursues the even tenor of its way. It has a published list of fifty-two members. The advent of a new member is evidently an event, for the name and address of last year's new member is given a bold heading all to itself at the end of the list of older members. An increase in the membership of a Society is a relatively healthy sign, but against this it seems that half-a-dozen of the older members neglected to pay their subscriptions. In these circumstances, a large show could not be expected, but that which was held in conjunction with the R.H.S. fortnightly meeting on the above dates exceeded expectations, both in extent and in quality. It was naturally a small show, as compared with the annual functions of most other special flower societies, but generally the quality was good and there were many really admirable exhibits to be seen.

Mr. James Douglas was the only trade exhibitor, and he showed a large number of his incomparable Auriculas. Mr. C. G. Kirch, Edenhall, Beckenham, was an exceedingly successful exhibitor amongst the amateurs and, in addition to many first prizes, he won the handsome James Douglas Memorial Challenge Cup.

Awards of Merit.

Auricula Redstart.—A very beautiful self-coloured Show variety. The flowers are of medium size, perfect in form and of bright red colour, with a white eye. The leaves and flower stems are heavily dusted with meal. Shown by Mr. C. G. Kirch.

Auricula Rolt's Fancy.—This is a large Fancy variety. The waved flowers have green margins which give place to rosy-carmine. The eye is white. Shown by Mr. James Douglas.

Competitive Exhibits.

There was no exhibit of twelve Auriculas, but C. G. Kirch, Esq. (gr. Mr. J. Wall), Edenhall, Beckenham, won the first prize in the class for six plants with an exceptionally good collection, which included the new variety Redstart; Edenhall, a good Fancy with green edges, shading to brown, and a white eye; and R. Trail, a powdered, green-flowered variety, E. Heron-Allen, Esq., Selsey Bill, was second. There did not appear to be a first-prize exhibit in the class for four Auriculas, but C. G. Kirch, Esq., was awarded the second prize for four good plants, which included Vesuvius, an attractive Self of bright red colour. Mr. Hewitt Pitt, Boxmoor, was first in the class for two plants.

In the classes for single specimens, Mr. A. S. Hampton, Reading, won first prizes with Elaine, a grey-edged variety, and with an exceptionally fine plant of Rachel, a white-edged variety. Mr. C. G. Kirch was second in both classes.

The class for new seedling Auriculas was was very interesting. Mr. C. G. Kirch won first prizes with Son of Zulu, a fine, dark Self; Manby, green-edged; Dr. D. Thomson, white-edged; and Miss A. C. Regnart, a fascinating Fancy. He was also second with Paul Joseph, a good yellow self.

Although there were few exhibitors of Alpine Auriculas the quality of the plants was good. Mr. C. G. Kirch had the best six plants, amongst which Argus, Majestic and Glow were excellent. Mr. A. S. Hampton, Reading, was second. Mr. Clifford Burton, Selsey, Chichester, showing a fine plant of Majestic in his exhibit, was first in the class for four plants. Mr. Hewitt Pitt was first with a good gold-centred alpine; and with six plants in the class for those who had not previously won a first prize, and with a single plant in the same section. Most of his plants were seedlings of merit. With a green-edged seedling Fancy, Mr. Hewitt Pitt was first in the class for amateurs only.

Mr. James Douglas was the only exhibitor of twelve Alpine and twelve Fancy Auriculas, and his very good exhibits which were awarded the first prize, included the new variety Rolt's Fancy and other splendid seedlings. Mr. C. G. Kirch was awarded the first prize for six Primulas in not fewer than three species or varieties. He showed distinct sorts, including exceptionally good plants of Primula Sieboldii, P. involucrata, P. saxatilis and P. denticulata. Mr. G. W. Miller, as usual, was awarded all the first prizes for Polyanthuses and Primroses. Mr. James Douglas received an Award of Merit for a collection of Polyanthuses.

Non-Competitive.

A large non-competitive collection of Auriculas, set up by Mr. James Douglas, included very many handsome plants of which the following is a typical selection: Heavenly Blue, of rich blue shades of colour; Jocelyn, shading from mauve to purple; Duke of York, velvety crimson shading to maroon with a golden eye; Harrison Weir, a beautiful new, white-eyed Self; Mrs. Gardener, a velvety old rose white-eyed Self; and Vesuvius, bright brick-red with a white eye. On the first day, Mr. Douglas placed before the Scientific Committee of the R.H.S. an instance of sporting in Auriculas which was unique in his experience. It was a well-grown plant of a new Alpine variety, named Queen of Spain, which had made three growths each producing a large flower truss. Two were normal, bearing large flowers of purple colour shading to deep velvety maroon, while the sport was a larger truss of satiny-mauve flowers shading to crimson lake. Both forms had canary-yellow-coloured centres. Mr. C. G. Kirch had a seedling Alpine Auricula bearing several trusses of velvety-purple flowers with two rows of petals.

Northern Section.

In an upper room of the Church House, Houldsworth Hall, Deansgate, Manchester, the fifty-fifth show was held on April 30, and it was in every way a success for those who love the quiet recreation and relaxation of the garden. Alpine flowers are a great joy to the eager and expectant cultivator, and of these the Primula, Auricula and Polyanthus are firm favourites, as well for their easy cultivation and propagation as for the wealth of their bloom. No plants are hardier, none take up so little room, and they are spring flowers.

As a florists' flower the Auricula is generally grown as a pot plant in the cool house or in a cold frame in and about towns, but in the pure country air it may be cultivated, with loving care, outside in the garden. The air of the higher altitudes is especially favourable to the development of the colour and substance of the bloom and the vigour of the leaf.

An object lesson of culture on the hills was seen in the class for gold-centred seedlings of Alpine Auriculas, shaded, in the specimen Sir Daniel, raised by Mr. Hall, of High Lane; its brilliancy of colour was a tribute to the skill and assiduity of its raiser and a testimony of its environment. Mr. Hall grows his plants high up on the hills. We call to mind specimens grown at Windermere by Col. Walker, especially gorgeous plants of Midas, and in a lesser degree, of Lucreece, seedlings of John Tonge.

A fine truss of Dr. Pegge, bright and burnished, was the outstanding feature of the first pan of six dissimilar alpine Auriculas, shown by Mr. K. Thompson; in this class the competition was keen, and Moonlight, Perchance and Argus were noteworthy examples. Col. Walker had a fine specimen of a light-centred flower in J. T. Bennett-Po—a time-honoured name —, and Muriel (Faulkner) a well-balanced flower; Joy (Thompson) a seedling, white-centred and shaded wine colour; and Doris Parker (Thompson) in red and gold, were all worthy of praise. Every sign of vitality and of high quality was evident in the seedling alpine sorts that were exhibited.

Of the show flowers the green edges were the most pleasing. Tom Battersby (Faulkner), with a black body colour and delightful green edge, had a lovely sheen which betokened health and vigour; other good varieties were Homer, with its pleasing yellow tube; George Rudd, Orient, A. Barker, Greenhead and Richard Headley, while Ossian was flat and smooth. Other good plants included a white-edged seedling, The Moonlight (Attwood), a seedling self, Scarlet Emperor

(Thompson), smooth and round and bright; Golden Glory (Thompson), of Buttercup-yellow, an improvement on the usual Cowslip-coloured yellow self.

In the big event, Class 1, for six dissimilar show Auriculas, there was little to choose between the two very fine sets of Mr. K. Thompson and Mr. C. Faulkner; seldom are two sets shown so nearly alike in points. Mr. Thompson, first, had a fine truss of a Shirley Hibberd, a grand old green-edge raised by Ben Simonite; this specimen (which obtained the premier prize) undoubtedly turned the scale in favour of Mr. Thompson. Mr. Faulkner had an attractive and well-set-up six, but, unfortunately, Richard Headley, his grey-edged specimen (a seedling of old Lightbody's) had pips that were not fully expanded. There were to be seen several instances of pips that needed flattening, a fault that may be ascribed to under development.

The Gold-laced Polyanthuses that were staged were not so numerous as one could desire, but the quality of the blooms seen was refined and jewel-like; I noted a good specimen of Hessle, a red ground, although its lacing did not quite cut through. We missed some of the older dark grounds, such as Blink Bonny. None of the centres had the foxy look so frequently found in a group of seedlings in the bed; these must not appear on the show table, where centres must be of gold, solid in colour, and twenty-two carat in tint.

Some of the growers were lamenting the difficulties of keeping the old sorts alive, such as Lightbody, Acme, George Rudd, A. Barker, Mrs. Henwood, Lancashire Hero and Traill's Beauty.

Change of environment was suggested, but, alas! individual sorts die out and newcomers are scarce.

The Society in its report and schedule of prizes gives explicit instructions for the cultivation of show Auriculas, and particulars that are most useful in the raising of seedlings. The outcome of long experience of the members of the Society is set down in order to assist and encourage the new grower. It also gives lists of hardy Primulas for rockeries and for the cool house; a list of suitable show varieties: hints as to treatment and the proper compost for their growth. This little pamphlet may be had from the Hon. Secretary of the Society, Mr. C. F. Faulkner, Warwick Lodge, Hale, Cheshire, for one shilling. *C. W. N.*

GLASGOW AND THE WEST OF SCOTLAND HORTICULTURAL.

At the monthly meeting of the Glasgow and West of Scotland Horticultural Society, on Wednesday, the 20th ult., Mr. Euan H. M. Cox delivered a lecture entitled "Through Burmah with Reginald Farrer," with lantern illustrations. Mr. Thomas Dagg presided.

Mr. Cox at the outset made reference to the introduction of new plants into this country from the Andes, China and other places, and commented on the fact that many of the Rhododendrons, Lilies, etc., which were found to be not quite hardy in this country when raised from introduced seeds, became hardier when the plants were grown from home-raised seeds. After describing the character of the country in Upper Burmah, he referred to the abundant vegetation formed on the hills up to an altitude of 12,500 feet, and stated that in a thirty-five mile area they found forty-nine Rhododendrons, twenty-three Primulas and eleven Magnolias. In this connection the lecturer mentioned that several of the subjects were being grown in the Botanic Gardens at Glasgow and Edinburgh and at Pollok Gardens and Logan Gardens in Wigtonshire. Among the many discoveries were two acres of a Lily in various forms, Lilium Brownii growing among ordinary Bracken, and a Peach which ripens green and provides good eating. The latter is being raised in England for hybridising. There was also a tree the wood of which was in great demand for coffin-lids. It took on a fine polish or lacquer, and the Chinese paid big sums to possess it. This particular tree was now growing in this country.

Sir John Reed expressed his appreciation of the lecture and commented on the cultivation of Rhododendrons in the west of Scotland.

Sir John Stirling Maxwell said it was a great privilege to hear an expedition described at first hand. He pointed out the necessity of taking care of the first generation of plants sent home so that they might establish in this country a fine and hardy race. He had been trying some of the seeds at Pollok, and his wish was to distribute them as widely as he could. There were enough for everybody, and he would be very glad to hear from any person who possessed the facilities for trying them.

A First Class Certificate was awarded to Mr. Peter Aitken, Bathgate, for a well-arranged exhibit of rock plants numbering about forty varieties.

ROYAL HORTICULTURAL.

May 10 and 11.—Notwithstanding the imminence of Chelsea Show, there was a grand exhibition at Vincent Square on these dates, the hall being filled to its utmost capacity with brilliant and interesting exhibits. The Darwin and Cottage Tulips provided great splashes of colour, as the several groups of these useful flowers were of considerable size and distributed throughout the hall. Flowering trees and shrubs, alpine and border flowers, Schizanthuses, Sweet Peas, Gardenias, Rose and Carnations were other attractions, while a large exhibit of finely-grown Cucumbers attracted a great deal of attention. Orchids were few in number. Novelties were fairly numerous and interesting. The cultivators of old-English Florists' Tulips had a small show of their own in the Orchid Annexe.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the Chair), Mr. Gurney Wilson (Hon. Secretary), Mr. J. E. Shill, Mr. H. G. Alexander, Mr. Fred K. Sander, Mr. T. Armstrong, Mr. Dye, Mr. R. Brooman White, Mr. Wilson Potter, Mr. Stuart Low, Hon. H. D. McLaren and Mr. J. Cowan.

AWARDS OF MERIT.

Laelio-Cattleya Santa Claus var. Lord Lambourne.—A very handsome variety with purplish rose sepals and petals and a rich ruby-coloured lip, edged with purple, with a bright golden base and brown markings. Shown by Messrs. Stuart Low and Co., Jarvisbrook.

Miltonia Kennie var. Rosalind.—An attractive and quaintly marked variety with rose-pink sepals and petals, and a white pink-tinted lip heavily marked around the dull yellow mask with rose-red, this colour radiating in lines of irregular spottings almost to the margin. Shown by Messrs. Black and Flory, Slough.

GROUPS.

The central feature in Messrs. Sanders' group was a large example of Dendrobium thyrsiflorum carrying ten of its handsome pendant racemes of white and gold flowers; another plant of this species carried fifteen somewhat smaller racemes. D. chysotoxum was also conspicuous, as were plants of the fragrant Cattleya citrina. Other interesting and useful subjects were Bulbophyllum Lobbii var. Colossus, Odontioda Westonbirt Beauty, Miltonia Bleuana, Dendrobium Falconeri and the rare D. cariniferum, and D. Draconis, both rarely seen nowadays. Odontoglossum platycheilum and Masdevallia gemmata also attracted attention.

Messrs. Charlesworth and Co. exhibited a small group of small but beautiful plants of Miltonia Lucia, M. Wm. Pitt, M. Princess Mary, M. Charlesworthii, M. Beau Brummel and M. Isabel Sander. Cypripedium Henry Smith, Odontoglossum Proteus, and O. Crethus were also attractive.

Messrs. Black and Flory showed a three-flowered spike of a lovely form of Brasso-Cattleya Mrs. Robert Paterson, in which the ample blooms were of fine substance, with the rich purple lip edged with mauve.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the Chair), Mr. J. F. McLeod, Mrs. Helen L. Smith, Lady Beatrix Stanley, Mrs. Ethel Wightman, Mr. Wm. Howe, Mr. H. J. Jones, Mr. Donald Allan, Mr. D. Ingamells, Mr. Hugh Dickson, Mr. M. C. Allwood, Mr. J. M. Bridgeford, Mr. E. R. Janes, Mr. W. H. Page, Mr. A. E. Vasey, Mr. James H. Riding, Mr. J. T. West, Mr. W. B. Gingell, Mr. D. B. Crane, Mr. H. R. Darlington and Mr. Courtney Page, and Mr. W. D. Cartwright (Secretary).

Section B.—Mr. Charles T. Musgrave (in the Chair), Mr. W. J. Bean, Mr. G. Reuthe, Hon. Henry D. McLaren, Mr. F. G. Preston, Mr. Reginald Cory, Mr. R. W. Wallace, Mr. A. Bedford, Mr. G. Yeld, Mr. R. D. Trotter, Mr. T. Hay, Mr. R. C. Notcutt, Mr. E. H. Wilding, Mr. C. Williams, Sir William Lawrence, Bt., and Mr. N. K. Gould (Secretary).

AWARDS OF MERIT.

Carnation Brilliant Improved, Page's variety.—This is a vividly beautiful perpetual-flowering Carnation. The flowers are large and shapely and borne on stout, erect stems. The colour is a bright cerise-scarlet. Shown by Mr. W. H. Page.

Dianthus Allwoodii var. Ann.—One of the free-flowering hybrids commonly known as "Allwoodii." The flowers showed a tendency to curl, but they were unusually large for the type and fully double. The colour is milk-white with a basal crimson-lake blotch. Shown by Messrs. Allwood Bros.

Dipelta floribunda.—This uncommonly beautiful deciduous shrub was first discovered in China in 1875, but it was not introduced to this country until 1902. The leaves are ovately-lanceolate and downy on both surfaces when young. The flowers are much like those of the Catalpa in shape, pink flushed outside, white within, and have golden markings on the lip. Shown by Lt.-Col. Messel, Nymans, Haywards Heath.

Hydrangea King George.—This and the following variety belongs to the batch of seedlings referred to a fortnight ago. It bears a large, shapely truss of rounded flowers of bright rose-pink colours. The margins are coarsely but regularly serrated.

Hydrangea Queen Mary.—In size of truss and the individual flowers this is a splendid companion to the foregoing. The margins are prettily serrated and the colour is a soft shade of pink. Both varieties were raised and shown by Mr. H. J. Jones.

Ranunculus asiaticus, Improved Palestine Strain.—A large vase of very beautiful flowers was shown; the blooms were all large, shapely, fully double, and in many cases, of lovely colours. We understand that these flowers represent Dr. Ragioneri's strain of which an illustrated account appeared in *The Gardeners' Chronicle* of July 26, 1924. Shown by Messrs. Watkins and Simpson.

Staphylea Coulombieri.—Although, beyond the fact that it was first grown in the famous arboretum of Segrez, the history of this deciduous shrub is unknown, it is generally supposed to be a hybrid between Staphylea colchica and S. pinnata. It is of more vigorous habit than either of the reputed parents, and the panicles are larger. The flowers are white, fragrant, and the flower-buds are lightly tinted with rose-pink. It is a handsome and desirable flowering shrub. Shown by Lt.-Col. Messel.

Staphylea Coulombieri Hessei.—In comparison with the foregoing, this is an inferior shrub. As shown, it differs in being less vigorous, in the panicles being smaller, and in the flowers being a dingy white flushed with pale purple. Shown by Lt.-Col. Messel.

Fothergilla major.—This is quite an old shrub and was grown in this country so long ago as 1870. The sprays now shown were unusually vigorous, and the erect, cylindrical spikes of flowers were exceptionally long. The flowers have no petals and owe their beauty to the pinkish stalks of the clustered stamens. Shown by Lt.-Col. Messel.

Meconopsis grandis.—This "Blue Poppy" was fully described and figured in *The Gardeners' Chronicle* of June 17, 1905. The plant now shown had one fully-opened flower on a stalk about two feet in height. The flower was fully five inches across, and the pale blue segments are lightly lined and flushed with purple. Shown by Mrs. Walter Jones (gr. Mr. F. Brooker), Aberuchill Castle, Perth.

Myrsine africana.—An interesting little evergreen shrub widely distributed over the Himalayas, China, the Azores and mountains of East and South Africa. It bears small, Box-like leaves which are aromatic. The sturdy little bush shown bore large numbers of minute, purplish flowers in the axils of the leaves, and also a few of last year's berries, which are much like those of Pernettya mucronata in shape, and stained blue-black. Shown by Lt.-Col. Messel.

Gentiana pyrenaica.—This attractive, little Gentian was introduced in 1825, and is figured in *Bot. Mag.*, 5,742. It makes a neat little plant with pale green leaves, and has solitary, shining, blue flowers, with a white base and golden stamens. Shown by Mrs. Walter Jones.

Cultural Commendations.

Conandron ramondioides.—A vigorous plant bearing luxuriant leaves and spikes, white flowers, flushed with purple, was shown. The species was introduced from Japan in 1879. Shown from the Cambridge Botanic Gardens.

Gentiana verna.—An earthenware trough, fully two feet long, and well-filled with healthy plants bearing large numbers of flowers, was shown by N. W. Jenkins, Esq., Trimmers Hill, Hindhead.

Groups.

A large and handsome group of Schizanthus hybrids was exhibited by Lord Leconfield (gr. Mr. F. Streeter), Petworth Park, Sussex. These large plants all illustrated first-class cultivation, and embraced many beautiful colours. This fine group was edged with equally well-grown plants of Astilbe. Messrs. Stuart Low and Co. displayed some especially well-flowered Mimosas, mostly Acacia armata, also Boronia heterophylla, Metrosideros floribunda, Azalea indica alba and Hippeastrums. Some tall plants of the old favourite Gardenia florida were shown by the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree.

Messrs. John Peed and Son again staged a large collection of their excellent Streptocarpuses. As before, the plants were especially well grown and illustrated a first-rate strain of most beautiful colours. Well-flowered Hydrangea hortensis were shown by Messrs. Wm. Cutbush and Son. Messrs. Sutton and Sons exhibited a small group of Cineraria Feltham Beauty and white Stock All-the-Year-Round. Particularly well-grown plants of Intermediate Stock were displayed by Sir Hugh Murray (gr. Mr. A. Witt), Bramble Hill, Lyndhurst.

Roses were shown by Mr. Pemberton, who grouped Polyantha varieties effectively; by Messrs. F. Cant and Co., who had a pretty group of standards and dwarfs; by Mr. Elisha J. Hicks, who included good vases of Padre, America, Mrs. H. Wimett, Coral Cluster and Mrs. George Norwood; and Messrs. B. R. Cant and Sons, who showed Orleans, Phoebe and other good varieties. Messrs. Reamsbottom and Co. had an attractive display of their St. Brigid Anemones.

Carnations in good condition were shown by Messrs. C. Engelmann, Ltd., who had large vases of White Pearl, Circe Improved and Red Laddie. Messrs. Stuart Low and Co. included Philip Sassoon, Ruby Glow and Master M. Stoop; while Messrs. Allwood Bros had vases of Spectrum, Wivelsfield Apricot and Mary Allwood, and also showed their Dianthus Allwoodii.

The first exhibits of Sweet Peas for the year made a bright display. Near the Tea Annexe, Messrs. Dobbie and Co. had a considerable group, which included several of next year's novelties, as yet unnamed, Gleneagles, Mary Rose, of pink shades; Wild Rose, George Shawyer, Mrs. Tom Jones and Eclipse. Messrs. Robert Bolton and Son had three large stands of their excellent novelties, Challenger, a beautiful waved flower of pink shades; Jessie, a lovely salmon-pink; and Mrs. A. Scarles, the N.S.P.S. Gold Medal variety of last year.

Under the clock, Messrs. G. and H. Cuthbert staged a collection of very floriferous Japanese Azaleas, including the varieties Glow and Sylphe. Near by, Messrs. Kelway and Son showed Tree Paeony L'Esperance, Lupins and Cineraria Kelway's Perfect Model Double, in several colours.

Alpines, both planted in small rock gardens and set out in pots were freely shown. Messrs. W. H. Rogers and Son included Campanulas, dwarf Veronicas, Primulas and Phloxes. Messrs. Maxwell and Beale showed Daphne Cneorum, Androsaces and Linum alpinum. Mr. F. G. Wood included dwarf Phloxes, Daphne Cneorum, Polyanthuses and Brooms. The Misses Hopkins had an attractive rock garden, and Messrs. Hodgsons, Ltd., had good batches of Primula Veitchii, Irises, Alyssum saxatile and Genistas.

Mrs. Walter Jones (gr. Mr. F. Brooker), Aberuchill Castle, Perth, exhibited an attractively arranged collection of Meconopsis which included unusually well-grown plants of M. grandis, M. quintuplinervia and the variety major, M. betonicifolia, and M. integrifolia. Gentiana verna, Incarvillea grandiflora, dwarf Phloxes and other rock garden plants were shown by Messrs. Waterer, Sons and Crisp. Mr. G. H. Dalrymple again showed varieties of Primula pulverulenta with P. littoniana.

An admirable rock garden was made by Mr. Clarence Elliott, and planted with generous breadths of Gentiana acaulis, Anemone sylvestris, Primula farinosa, Dianthus alpinus, Campanula Stevenii and other alpines. Mr. J. Robinson had Violas, Phloxes and Saxifrages. Messrs. B. Ladhams, Ltd., had a large collection of Trollius, Myosotis Orion, of intense blue colour, Violas, Irises and other spring flowers. Some excellent Trollius, in named varieties, were staged by Messrs. Bakers, Ltd.

In a well-arranged exhibit, the Central Garden Supplies showed Ranunculus graminifolius, Saxifraga Aizoon, Helianthemums and other rock garden plants, with well-flowered bushes of Kalmia latifolia and dwarf Conifers. Messrs. M. Prichard and Son staged Dodecatheon Media, Cypripedium montanum, C. pubescens, Oxalis adenophylla and a number of plants of Saxifraga pyramidalis bearing long, graceful sprays of flowers.

The Maytham Gardens had a pretty group of Lupins in good colours, Paeony Avant Garde, Choisya ternata, Primula japonica atrosanguinea and Clianthus puniceus. Mr. James Douglas again staged some of his very good Auriculas. Messrs. J. Cheal and Sons had flowers of Dahlias.

An attractive group of shrubs arranged by Mr. R. C. Nottcutt included Fremontia californica, Pyrus Sargentii, P. Eleyi, P. Scheideckeri, Cytisus kewensis, C. Dragon Fly, C. Donard Seedling, various Lilacs and Maples. Messrs. L. R. Russell, Ltd., staged large specimens of Wistaria sinensis, with Brooms, Pittosporums, Ceanothuses and other shrubs. Mr. J. Klinkert had well-grown topiary specimens.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the Chair), Mr. G. W. Leak, Mr. Rollo Meyer, Sir Daniel Hall, Mr. J. Jones, Mr. C. Tichmarsh, Mr. C. W. Needham, Mr. F. Secrett, Miss Willmott, Mr. Alfred W. White, Mr. Duncan Pearson, Mr. G. Churcher, Mr. Herbert Smith, Mr. Charles H. Curtis, Mr. Peter R. Barr and Mr. A. Simmonds (Secretary).

The Committee had a busy session, as in addition to considering the merits of numerous novelties in Tulips and judging groups of Tulips, it made a final draft of the varieties of Daffodils that are to be used as standard sorts for the Wisley trials.

Awards of Merit.

Tulip Mars.—A handsome and bold Darwin variety of deep orange-scarlet colouring, with a yellow base, this basal colour showing also on the outside. The segments are rounded and substantial. Shown and raised by Sir Daniel Hall, Merton, Surrey.

Tulip Bronze Wings.—In this elegant variety the flowers are of a ruddy bronze hue, shading to golden bronze towards the margins of the outer segments. The base is bronzy-blue. Shown and raised by Sir Daniel Hall, Merton.

Groups of Tulips.

The many collections were of great beauty, and as the day advanced the blooms opened widely, making a gorgeous display. Messrs. Dobbie and Co. filled a large space with an excellent collection of Darwin, Cottage and Parrot Tulips, which was arranged with great taste and skill. Their Parrot Tulips included Lutea, Sensation, a beautiful feathered flower, and Zany, of scarlet and gold colouring. Amongst the many Cottage Tulips we especially admired Mrs. Moon, yellow, Picotee, and Avis Kennicot, bright yellow. The chief of the Darwins were Dom Pedro, a handsome bronzy flower; La Tulipe Noire, of very dark, almost black. maroon; Panorama, orange-cardinal; Europe, scarlet; Orange Perfection, King George, rose-pink; The Giant, purple, and Zwanenburg, white. Besides these there were handsome vases of Gesneriana lutea and the brilliant Gesneriana major.

There were many of the beautifully-marked Old-English varieties in the splendid collection set up so well by Messrs. Barr and Sons. The chief of these fascinating Tulips were Troubadour, white with lilac markings; Gloria Mundi, purple and yellow; Bartlett, red with white feathering, and Esopus, rose-pink, flaked with white. Amongst the many Darwins we especially admired the duskiness of La Tulipe Noire and of Zulu; Gwydr, pale heliotrope; Roi de Siam, rich purple; Clara Butt, pink; Velvet King, deep maroon; Vesta, white; Margaret, soft pink; Louis XIV, bronzy purple, and Ellen Willmott, a large yellow variety of Tulipa retroflexa type.

Near the gallery, Messrs. Pearson and Sons had a good collection, chiefly of Darwin varieties, of which we select for special mention the vases of Europe, scarlet; Farncombe Sanders, crimson; Orion, rich rose-pink; Cararra, white; William Copland, mauve shades; Faust, deep maroon; Scarlet Emperor and Edmée, pink. Messrs. R. H. Bath, Ltd., included in their collection of well-grown flowers, vases of Viking, deep purple; Princess Elizabeth, rose-pink; White Queen; Professor Michael Foster, deep rose-pink; Bronze Knight, golden bronze, and Prof. Francis Darwin, crimson.

The Rev. Rollo Meyer, Watton Rectory, showed massed vases of The President, orange; Inglescombe Pink; Goudvink, purple with orange shading in the edges, and Golden Bronze. Mr. G. W. Miller had Tulips and Polyanthuses. The former included Zulu, William Pitt, Baron de la Tonnaye, Harry Veitch and Europe. In the collection arranged by the Bronwylfa Fruit Farm there were vases of Marconi, pink; Loveliness, soft pink; Marie, deep rose-pink; Inglescombe Yellow; The Fawn and Psyche, pink shades. Messrs. J. J. Grullemans and Sons had a small collection of Darwin varieties.

In a goodly collection, Messrs. D. Stewart and Son had vases of Jubilee, deep purple; Gesneriana spathulata, Purple Perfection, Mrs. Moon and Picotee. The Welsh Bulb Farms staged vases of Massachusetts, pink; Ida Scott, purple; Glow, crimson; Afterglow, lovely orange-crimson; Gesneriana lutea and Louise de la Vallière, deep rose. Mr. H. G. Longford staged many good varieties including Zany, the attractive Parrot Tulip; Alaska, yellow Darwin; Dulcinea, deep rose Darwin; Dido, salmon-pink; and Prince Albert, a Darwin with attractive bronzy shading to the margins.

Fruit and Vegetable Committee.

Present: Mr. A. H. Pearson (in the Chair), Mr. J. Cheal, Mr. H. S. Rivers, Mr. P. C. M. Veitch, Mr. G. Tinley, Mr. H. Smith, Mr. E. Laxton, Mr. W. Giles, Mr. H. Prince, Mr. W. H. Divers, Mr. E. Beckett, Mr. E. A. Bunyard and Mr. A. N. Rawes (Hon. Secretary).

It was resolved to send a message of condolence to the Chairman, Mr. C. G. A. Nix, on the death of his brother, Mr. John Nix, of Tilgate

Manor, Crawley. The late Mr. Nix was a frequent exhibitor of fruits at the R.H.S. meetings; his gardener, Mr. E. Neal, is a member of the Fruit and Vegetable Committee.

The only exhibit before this Committee comprised twelve varieties of Cucumbers, from Lord Leconfield's gardens at Petworth Park, Sussex (gr. Mr. F. Streeter). The quality of the fruits was exceptionally high, and the bloom on the skin was finely developed, exemplifying high cultivation. The varieties were Matchless, Ideal, Every Day, Satisfaction, Delicacy, King George, Model, Lockie's Perfection, Jasper Queen, Peerless, Tender and True, and Constitution.

DUNDEE HORTICULTURAL.

The usual monthly meeting of this Society was held in the Training College, Park Place, on Friday, the 22nd ult.

The lecturer for the evening was Mr. E. H. M. Cox, of Glendoick, and his subject, "Alpines." Mr. Cox stated that the stones in a rock garden should be placed naturally, with the weathered surfaces outermost and the strata running in a direct line, as though they had been there permanently. An essential feature of a rockery was good drainage, as many alpine plants in their native haunts grow in gravel with practically no soil. The lecture was illustrated by coloured lantern slides, which showed plants growing on rockeries on a large and small scale.

Messrs. Storrie and Storrie, Glencarse Nurseries, exhibited Primula obconica gigantea and Schizanthuses, for both of which the Committee awarded a Cultural Certificate.

GERMAN HORTICULTURAL.

Under the title of "Flowers from Home and Abroad," the German Horticultural Society organised in the Berlin Town Hall, from April 13 to April 20, a Spring Horticultural Exhibition, which proved very successful and attracted large numbers of visitors. In the late summer of last year an exhibition was attempted by the same Society, with limited success, owing to cramped accommodation and other causes; but this partial failure was of value in showing the organisers where shortcomings were likely to occur, and their readiness to learn by past experience was in the present instance fully rewarded.

The floral decoration of the rooms was excellently done, especially the surroundings of the "Spring" in the hall known as the Lichthofe. Rather less happy was the arrangement of the Obersaal, almost filled with a very large central bed, in which yard-high Cactuses and Cinerarias were accommodated. The Hydrangeas, however, beautifully arranged and in the pink of condition, made up for many shortcomings in other directions; the superb Wintergalen group won the coveted Prussian Government Medal, and the Matthes exhibit on the next stand seemed equally meritorious in its own way. In the Lichthofe, as well as the pretty "Spring," were the Azaleas and Rhododendrons shown by the firm of Karger, and a collection of enormous, brightly-hued Hydrangeas from Dehmlow's, of Heinersdorf. Mr. Arthur Brand showed fine Roses, and Mr. De Coene, pot Figs. A collection of more or less rare warm-house plants, including Medinilla magnifica, in full bloom, came from the Government Gardens at Sanssouci, of which Herr Kunert is the Director. Orchids, Carnations, cut Roses and brightly-coloured Calceolarias were all well-shown by specialists in each line; and two landscape gardening firms showed miniature rock gardens. Some of the German horticulturists were inclined to frown upon this latter section, as being unsuitable for an indoor exhibition, but it was very popular with the public and attracted considerable favourable attention.

Another somewhat unconventional feature, which likewise proved a valuable attraction, was the presence of a large number of German and foreign song-birds, the Berlin Cage-Bird Association having combined with the Horticultural Society in organising the exhibition. The song of the birds agreeably enlivened the show, and not much exception could, perhaps, be taken to their presence.

MORAY FIELD CLUB.

The annual meeting of the members of this Club was held in Elgin Museum, the Rev. George Birnie, B.D., Speymouth, the President, in the chair. Mr. J. J. Burgess, M.A., Secretary and Treasurer, presented the financial statement, showing a credit balance in favour of the Club. The Chairman, after extolling the services of Mr. Burgess, who had held office for twenty-five years, reviewed the work of the Club last year, and mentioned that Dr. Douglas Simpson, Librarian of Aberdeen University, a noted authority on ancient architecture in Scotland, had promised to accompany members of the Club to Spynie Palace and Duffus Castle during the coming season, and to tell them something about these historic buildings. Mr. H. B. Mackintosh, a sell-known Morayshire historian, had also consented to act as cicerone during the Club's visit to the port and loch of Spynie. Warm thanks were expressed to Dr. Simpson and Mr. Macintosh for their kind offers.

The following arrangements for excursions were provisionally made:—May 14, Blackhills; May 21, Kellas; June 11, Greshop Woods, Forres; June 25, joint excursion with the Literary and Scientific Association, under Dr. Douglas Simpson's guidance, to Spynie Palace, Duffus Castle, and Burghead; July 9, Rothes; August 20, Richmond-Gordon estates, Fochabers; September 3, to Spynie Loch and port, with Mr. H. B. Mackintosh; September 17, forestry demonstration at a place to be fixed later.

TRURO SPRING FLOWER SHOW.

This show, which opened at Truro, on Tuesday, April 26, afforded a demonstration of what the Cornish climate will produce. Although Rhododendrons were not as good as in previous years, this was expected owing to prolific flowering in 1926 and the heavy gales of the present spring. The Lord Lieutenant of Cornwall, J. C. Williams, Esq., put up a unique collection of hybrid Rhododendrons. In this collection was a particularly fine R. Maddenii × R. cinnabarina cross.

Another feature of the show was a new seedling Leptospermum scoparium, exhibited by the Rev. A. T. Boscawen, Ludgvan, with particularly large and semi-double flowers.

The Tulip classes were well filled, Col. Paynter excelling with excellent Darwin varieties. Collections of shrubs form one of the most attractive features of these shows, and it was very regrettable that the Rev. A. T. Boscawen was not showing in this section, as he has for years taken the premier award, and his action this year can only be regarded as that of a sportsman in order that other people might have a chance. The first prize exhibit of Mrs. Bolitho, of Trewithen was very fine. It contained excellent examples of Drimys, Erica melanthera, Enkianthus and Eriostemon neriifolium. The second prize was won by Mrs. Hext, who had fine specimens of Buddleia Colvillei, Cytisus proliferus and Exochorda.

Acacias were also much in evidence, and in the class for three vases of these, Viscount Falmouth was placed first with well-grown examples of A. verticillata, A. longifolia and A. melanoxylon.

Flowering Cherries were another feature of the show, and in the prize-winning exhibit of Mr. A. M. Williams were some beautiful specimens of C. Hisakara, C. Veitchii and C. Lannesiana.

There was a welcome increase in the number of alpine exhibits, and many of these contained choice, well-grown specimens.

Traders were represented by Messrs. R. Veitch and Son, Exeter, whose outstanding plants were Kennedya ovata, Prostranthera nivea and Statice profusa; by Messrs. Treseder, Truro, and Mr. Ruse, Falmouth, who had their usual exhibits of choice shrubs and flowering plants; by Messrs. Maxwell and Beale, Broadstone, Dorset, who had a very prettily arranged rockery and Heath garden; by Mr. James Cock, of Hayle, who showed Tulips, Anemones and Trollius; by Messrs. Reamsbottom, who displayed Anemones; by Mr. J. C. Martin, who had an attractive stand of Narcissi and Gladioli; by Messrs. Allwood Bros., who showed Carnations, and by Messrs. Hewitt and Co., Warwick, who exhibited very fine Delphiniums.

Obituary.

J. A. Nix.—We regret to announce that Mr. John Ashburner Nix died on the 9th inst., following an operation, in a nursing home in London. He was the elder son of the well-known banker, Mr. John Hennings Nix, and brother of Major C. G. A. Nix, Chairman of the R.H.S. Fruit and Vegetable Committee. Mr. J. A. Nix was a big landowner in the county of Sussex, and had a fine garden at his residence, Tilgate, Crawley, where he was especially successful in the cultivation of indoor and outdoor fruits. He exhibited frequently, especially at the meetings of the Royal Horticultural Society, and his exhibits always won high awards. He also took a keen interest in afforestation. He interested himself in local work, and was at one time Chairman of the East Sussex County Council, and at the time of his death was Chairman of the Roads and Bridges Committee. The late Mr. Nix was not married; we understand that the estate passes to the family of Major C. G. A. Nix. Mr. E. Neal, gardener at Tilgate, contributed the weekly notes on the "Hardy Fruit Garden" to these pages in 1925.

ANSWERS TO CORRESPONDENTS.

Green Beetle on Rhubarb.—*L. H.* The beetle is the common Tortoise Beetle (Cassida viridis), usually plentiful on Thistles, which appear to be its natural food plant. The larva is a little prickly-looking creature which constructs a sort of awning of its own excrement, and carries it about with it. There are eleven other species of the genus in Britain, and most of them are green; several are brown, and one of these (C. nebulosa) attacks Beet and other plants.

Hydrangeas with Anaemic-looking Leaves.—*W. T. B.* The Hydrangeas appear to have been potted in a compost deficient in iron. The same appearance may be brought about by too much lime or chalk in the soil; but it more often happens to be due to too much manure in the compost, as in the case of Roses. The leaves have not developed the chlorophyll or leaf-green in their tissues. By watering the plants once a week with a quarter-ounce of sulphate of iron to a gallon of water, we think you will get the leaves to turn green before the plants come into bloom. The treatment might have commenced earlier to advantage, because the plants are now far advanced. It would be well not to force them too quickly with fire-heat, but let them develop slowly, admitting air to the house judiciously.

Raspberry Moth Grubs.—*A. P.* The red grubs are the larvae of the Raspberry moth, which are boring their way to the pith of the canes, where they will pupate. The only thing to do at this stage is to cut off affected shoots and destroy the grubs. This is usually sufficient to keep the pest in check. In autumn the old canes should be cut out close to the ground and burnt, together with any old, cracked stakes for the larvae winter in such places and in the ground. If the attack is serious it would be worth while to try the effect of a soil fumigant during next winter.

Communications Received.—C. S.—J. M.—H. M.—A. D. B.—G. D.—J. H.—H. S.—W. A.—P. M. T.—C. F.—T. P.—A. G.—W. L.—A. J. H.—W. H.—W. F. H.—D. M.—H. H. C.—H. N. G.

THE
Gardeners' Chronicle

No. 2108.—*SATURDAY, MAY* 21, 1927.

CONTENTS.

Alpine garden—
  Androsace Laggeri ... 352
  Senecio tyrolensis 352
Auton, Mr. W. ... 349
Bulb garden—
  Lilium longiflorum var. sinense ... 352
  Raising Liliums from seeds 352
Burford Lodge Gardens 348
Celery fly, the ... 350
Chelsea Flower Show... 348
Cherries, French ... 348
Chrysanthemums, trials of early-flowering and single at Nantwich 347
Forestier, M., retirement of 348
Fruit garden—
  Inducing dormant buds to break ... 358
  Late-flowering Apples 358
  Strawberries ... 358
Fruit-growing in the Western Cape Province 357
Fruit register—
  Apple Rivers' Early Peach 358
  Apple Wyken Pippin 358
  Pear Beurré Bosc ... 358
"Gardeners' Chronicle" seventy-five years ago 349
Garden notes from south-west Scotland 356
Gladiolus, the... ... 356
Hardy flower border—
  Anthemis tinctoria Kelwayi 352
Hydrangeas, British seedling 347
Ideal gardens and plant lore 354
Iris Society's outing... 348
Kew Guild 347
Kew, visitors to, in 1926... 348
Obituary—
  Hutchinson, W. ... 362
  Ochs, Jakob ... 362
  Postle, Arthur ... 362
Parks and gardens, public 360
Plant, a new forage ... 355
Potatos, trials of maincrop 347
Societies—
  British Carnation... 361
  Guildford and District Gardeners'... 362
  Iris 362
  Manchester and North of England Orchid 361
  National Tulip ... 361
  Royal Caledonian Horticultural ... 362
  Royal Horticultural 362
  United Horticultural Benefit & Provident 362
Trees and Shrubs—
  Abies pectinata ... 353
  Daphne retusa ... 353
  Exochorda Wilsonii 353
  Rhododendron leptothrium... ... 352
Tropaeolum tuberosum 360
Vegetable garden—
  Chinese Mustard ... 360
  Forcing Seakale ... 360
  Runner Beans ... 360
Violas, a revision of ... 356
Week's work, the ... 350
Yeld, Mr. George ... 348

ILLUSTRATIONS.

Apple Crawley Beauty, a tree of... 358
Apple, Rivers' Early Peach in flower 359
Chelsea exhibition, 1927, plan of 361
Daphne retusa 353
Fruit, drying ground for, in South Africa 357
Rhododendron leptothrium 355
Staphylea Coulombieri 349
Tulip, Bronze Wings 351
Yeld, Mr. George, portrait of 348

SUPPLEMENT PLATE.

Abies pectinata at Stanage Park.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 55·7°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 18, 10 a.m. Bar. 30·8. Temp. 58°. Weather, Sunny.

Maincrop Potato Trials.

THE benefits conferred on horticulture by the unremitting efforts of those concerned commercially in the improvement of plants is rarely recognised, and yet more rarely acknowledged. Yet these benefits are manifest to every one who considers the large number of varieties of horticultural plants of economic value which are in existence. The numbers, indeed, suggest at times that the benefits are excessive, and that our gratitude in future may well prove to be not in direct, but in inverse ratio to the number of varieties. There are, of course, too many varieties of Potato, for instance, and we should all like to see some of them go to the limbo which receives discarded things. But to cavil of the plenitude of bounty is to expose a peevish mind, for it is only by trying all things that those which are good may be discovered. Furthermore, as shown by the recently published report of the trial of maincrop Potatos carried out by the National Institute of Agricultural Botany[*] there is more justification than would at first sight appear for large numbers of varieties of economic plants. Commercial houses which have done so much in the way of raising and making available varieties which mature at different seasons—early, mid-season and late—have, as the result of these trials show, produced a well-nigh continuous series of forms, the members of which, even though they be put into one category, differ one from another in time of maturity. In other words, the groups into which Potato varieties are classified, early, second-early, and maincrop, are only convenient and not absolute. For instance, there are as large differences in time of maturity between extreme members of the maincrop group as there are between certain maincrop and certain second-early varieties. Thus in the report now under consideration, there were in the Ormskirk trial so many as twenty-five days between the maturing of the latest maincrop variety—in this case Kerr's Pink—and the earliest, namely, Ally. Majestic, on the other hand, took only a day longer to mature than did the precocious Ally, and Tinwald Perfection only about three days. The capriciousness of plants was, of course, amply illustrated in the trials, for, whereas Majestic was just in front of Tinwald Perfection at Ormskirk, it was four days behind the latter at Truro, whilst less than a day separated them at Kirton. The report illustrates also that profound horticultural truth that "what you lose on the swings you make up on the roundabouts," for the order of precocity is, albeit, completely inverted by the order of heaviness of yield. In all three trials Kerr's Pink, which was the latest of the Maincrop Potatos, gave the heaviest yield. The battle—at all events the heavy-weight championship—is not to the swift, and Tinwald Perfection, so early in general, comes near the bottom of the yield list. Yet the incompatibility between earliness and yield is not absolute—nothing is in Nature—for Ally in the van of earliness occupies a middle rank in respect of yield. That excellent Potato—excellent for the epicure, if not for the market—Golden Wonder, is leisurely in development, requiring nearly a fortnight more to mature than does Ally, and is relatively light of yield, producing a mere nine-and-a-half tons per acre, as against the weighty behaviour of Kerr's Pink, which yielded at Ormskirk nearly fifteen tons. So there are Potatos for all tastes and all times, and the grower may choose the variety which best suits his convenience—those which are ready early for lifting, those which give late but heavy crops, and those which are not very early and not very heavy, but the flavour of which is—so far as flavour goes in Potatos—delectable. The final reflection which a perusal of this report evokes, is that now that science is doing such useful things for us, it should never forget that just as these were heroes before Agamemnon so there were able and successful discoverers before modern scientists were born, and that it was they who laid the foundations on which science is now industriously, and as time no doubt will prove, building successfully. The *Journal* contains some useful, if severe, reflections on the continued prevalence of misnomers of Potatos, *i.e.*, of old varieties receiving new names, and needless to say, such practices are much to be deprecated. But we would suggest that the way to extirpate the evil is the way of continuous propaganda. The reformer is too apt to remember the adage "anger hath its privileges," and to exemplify it in his own person, and is too apt to forget that ignorance and not naughtiness is responsible for most of the failings of mankind. Therefore, the Potato Committee of the N.I.A.B. should be patient with us all, and keep on telling us with suave insistence rather than with acerbity all about the proper naming of varieties. The scientific intelligencia would not be less effectual if they were more patient.

Kew Guild.—The Annual General Meeting of the members of the Kew Guild will be held at the Clarendon Restaurant, The Broadway, Hammersmith, on Wednesday, May 25, at 6.15 p.m. The usual dinner will follow the annual meeting, when the President of the Guild, Mr. Walter Irving, will preside.

Trials of Early-flowering and Single Chrysanthemums at Nantwich.—Mr. W. E. Sherwell-Cooper, the Horticultural Superintendent to the Cheshire School of Agriculture, is organising a trial of Chrysanthemums to be held this year at Reaseheath, Nantwich. Early-flowering varieties introduced this year will constitute one trial and all the varieties tested last season and which were cut down by frost on October 15 before they flowered, will be grown again. New November- and December-flowering Single varieties will provide a third trial, while a special commercial trial will be conducted for the purpose of estimating the costs of disbudding as against undisbudded blooms, and comparing the resultant prices obtained by each method. The trials will be open to inspection in the autumn and should prove both interesting and useful.

"Index Seminum" of the Paris Natural History Museum.—A copy of the *Index Seminum* of the Paris Museum of Natural History has reached us, listing a very large number of species. At the end of the catalogue is a supplementary list of seeds gathered from wild plants in various localities, some in France, and some in French colonies and other foreign countries, including Chili, Mexico and Sweden.

British Seedling Hydrangeas.—The observation recently made in these pages to the effect that the seedling Hydrangeas raised by Mr. H. J. Jones and exhibited before the Royal Horticultural Society were the first raised in the United Kingdom from home-raised seeds, has been challenged. It appears that Mr. C. Stacey, of Chorley Wood Cedars, fertilised flowers of garden varieties of H. hortensis, saved seeds and raised seedlings about the same time as Mr. H. J. Jones (see p. 317), but Mr. T. Vallance, West Lodge, Greenfield House, Alloa, informs us that he raised a batch of seedlings many years ago, when at Cardean, Perthshire, and he has several of the plants in his possession now. He crossed La Perle with another French variety as at the time he "thought if a Frenchman could raise seedling Hydrangeas, why not a Briton?" It will be interesting to learn if any seedlings were raised prior to Mr. Vallance's successful attempt.

Brussels Horticultural Congress.—The Belgian Horticultural Congress is to be held at Brussels this year, at the Palais des Académies, on September 11. The subjects of discussion will number five, and will comprise the Social Rôle of Horticulture; Horticulture and the Economic Life of the Nation; Horticulture for Pleasure; Family Life in relation to Horticulture and Gardening; Horticultural Instruction, and the Relation of Science to Horticulture.

South African Seed Export Trade.—A conference of nurserymen and seedsmen from all parts of South Africa assembled at Port Elizabeth on Tuesday, April 12, under the presidency of Mr. C. Starke, and the visitors received a civic welcome from the Mayor of the City, Mr. Young. Mr. Starke, in the course of an address, stated that the export of seeds from South Africa was still very small, but capable of much increase. Business within the Union in the nursery and seed trade had been quite up to the average, and there were indications of an expansion. The small Maize crop harvested in South Africa during 1926 had, however, caused a restriction in farm business. On the other hand, the crop which was now almost ready for reaping was estimated by the Government Agricultural Department as likely to be the second largest produced in the Union. The exportable surplus of Lucerne seeds of the 1926 crop was very small, and what was once a very promising source of income to the Union farming community had dwindled very considerably during the past year, due almost entirely to two years of drought in the Lucerne-producing areas. The 1927 crop would also be small, and leave little for export, if any. The winter cereal crops had been fairly good. The demand for seeds, however, was not so brisk as could be desired, but it was still early in the season, and if good rains fell there would no doubt be a welcome improvement. Mr. Starke paid a generous tribute to the work of Dr. C. P. Lounsbury, the recently retired chief of the Entomology Division of the Government Department of Agriculture, and stated that the prospects of developing an export trade in South African-grown seeds to other parts of the Empire were at present being considered by the Department of Agriculture, and the Conference would be asked to give its views on the matter. If steady supplies of the right quality were available, he felt that South Africa, with some effort, could secure at least a portion of the Empire's trade, as the climate was very suitable for the production of seeds of high germinating quality, and the members of the Nurserymen and Seedsmen's Association could be of great assistance in fostering the production of good seed in South Africa. The Conference sittings were held in private.

---

[*] *Journal* of the National Institute of Agricultural Botany. No. 6, 1927.

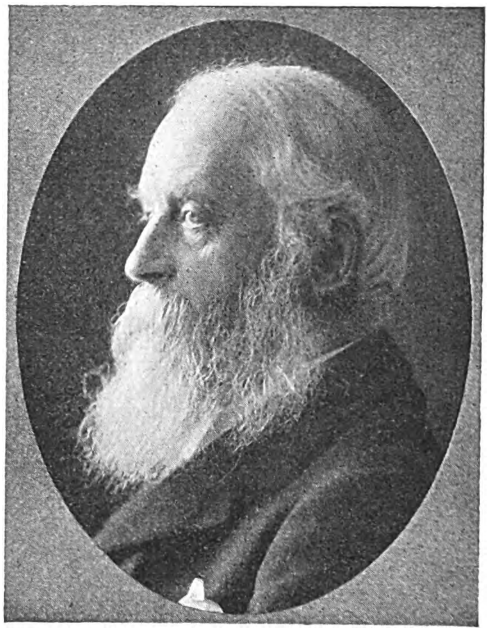
Forthcoming French Horticultural Exhibitions.—A horticultural exhibition is to be arranged at Nancy, from June 9 to June 13, in connection with the district agricultural competitions which are to take place at that period. From the 7th to the 13th of the same month, the local horticultural society is holding an exhibition at Angoulême, in commemoration of the fifty-years' jubilee of its foundation. At Troyes, an exhibition of Roses and other flowers is to be held on the 4th, 5th and 6th of June, and on the 12th, at Romilly-sur-Seine, a similar exhibition will take place. At Angiers, a general horticultural exhibition is to be arranged, to last from the 16th to the 26th of June, the local horticultural society and the Department of Maine-et-Loire combining in the management.

French Cherries.—French Cherry-growers are seriously concerned at the action of the English Government in prohibiting the importation of Cherries, unless accompanied by a certificate of freedom from the Cherry Fly, and many consultations have taken place between representatives of the two countries on the subject. A *modus vivendi* has now been established in the formation of a Syndicate which will represent the French Cherry growers, and will furnish a trade mark to its members for attachment to their consignments. This label will be accepted by the English authorities as evidence that the Cherries bearing it are clean, and the Syndicate will undertake not to issue the label to any but its own members, whose plantations will be rigidly controlled and inspected. This should prove a satisfactory method of dealing with what threatened to be a serious situation. The presence of the larva of the fly in the affected Cherries caused a set-back in the Cherry trade which injured not only the French exporters but also the English growers, as the public could not be expected to know which Cherries were French and which English, and played for safety by abstaining from buying Cherries at all.

Iris Society's Outing.—The members of the Iris Society have arranged an outing to the Iris trials in the Royal Horticultural Society's Gardens, Wisley, on Friday, June 3, the day following the Society's exhibition. A motor-coach will leave the Grosvenor Hotel, Victoria, at 10.15 a.m. and proceed to the Hut Hotel, Wisley, where lunch will be provided at 12 noon. The Wisley Gardens will be visited at 1.15 and tea will be provided at the Hut Hotel at 4.30 p.m., the return journey being timed for 5.15 p.m. from the hotel. Further particulars may be obtained from the Hon. Secretary, Mr. G. N. Bunyard, Bower Mount, Maidstone.

Burford Lodge Gardens.—Sir William Lawrence will throw open his gardens at Burford, Dorking, on Whit Monday, June 6, from 11 a.m. to 1 p.m., and 2.30 to 7 p.m. A charge of one shilling will be made for admission, on behalf of the funds of the National Memorial to Queen Alexandra.

Mr. George Yeld, V.M.H.—We are glad to know that the valuable work which the veteran Mr. George Yeld has done in connection with Irises has received recognition from the Iris Society, which has selected him as the first English recipient of the Foster Memorial Plaque—a "special and personal award to anyone contributing to the advance of the genus." Mr. Yeld has continued his work in a quiet, unassuming manner, and produced some of the most beautiful garden Irises in cultivation, including Lord of June, which will always remain as a triumph of his skill. The Royal Horticultural Society awarded him the Victoria Medal of Honour in 1925. We take the opportunity to publish a portrait of this worthy gentleman, and offer him our heartiest congratulations on the honour bestowed upon him by his fellow workers and lovers of Irises.



MR. GEORGE YELD, V.M.H.

Chelsea Flower Show.—The exhibition of the Royal Horticultural Society in the grounds of Chelsea Hospital, on May 25, 26 and 27, promises to be one of the finest and largest of the series, and only fine weather is needed to ensure success. An additional area has been secured this year to the right of the Monument (see, Fig. 172, p. 361), and will contain the special Orchid tent, the scientific and conference tent and the art tent, besides a refreshment marquee and space for sundries. The majority of the exhibits under canvas will be accommodated in two very large tents in the usual position. The pollarded Lime avenue will be utilised, as usual, for the display of sundries and adjoining the avenue will be the formal gardens, while the rock gardens will be in their usual place, by the Embankment road. The new arrangements to have the judging completed on the Tuesday will permit of the exhibition being completed and opened to the Fellows for a private inspection on the Wednesday morning, an innovation that is sure to be appreciated; the Fellows will have an opportunity of inspecting the exhibits from 9 a.m. until 12 noon, at which hour the general public will be admitted.

National Park for Saskatchewan.—Some 1,377 square miles of land has been set apart by the Canadian authorities in northern Saskatchewan as a National Park, to be known as the Prince Albert National Park. Its object is to preserve in perpetuity a section of the primitive forest and lake country, and to provide the people of the province, as well as those of other parts of the Dominion, with a great recreational area.

Paris Municipal Gardens.—The retirement of M. Forestier from his position as Conservator of the Western Section of the Paris Parks, (to which we refer elsewhere), and also that of M. Lefebvre, the Conservator of the Eastern Section, has led to a slight modification of the system which has hitherto prevailed, and the office is now in the hands of a Conservator General, M. Demorlaine, the Conservator of Waters and Forests, and Professor at the National Agronomical Institute.

Visitors to Kew in 1926.—The Editor of *Journal of the Kew Guild* writes to point out that the decreased attendance to the gardens in 1926 was not attributed in the *Journal* to the reimposition of the charge of 1d. for admission, and states that the cause was put down to the industrial crisis, lack of transport and other reasons directly due to the general strike of May, 1926. We agree that the strike may have been responsible to some extent, but consider the reimposition of the 1d. charge was the chief cause of decrease, for in the year 1922, when an admission fee was also in vogue and no industrial crisis, the attendance was even smaller than in 1926, the figures being 1,143,758 and 1,162,547 respectively.

Moray and Nairn Foresters.—The first summer outing of the Moray and Nairn Foresters' Society was held on the Seafield estates forests, Grantown. In that area of the vast Seafield property there are many thousands of acres of plantations, and the land is admirably adapted for natural regeneration. The party started with a tour of the few remaining old forests in Scotland of stately Scots Firs. The conductors of the tour, Messrs. Brown and Marshall, of the Seafield estates, explained that the trees were lifted from Nethybridge and planted near Grantown 150 years ago. It was agreed that there were few such fine sights to be seen in this country. Proceeding down the slopes of the "regal, rolling Spey," as John Bright, the eminent statesman described the river, natural plantations were inspected and the methods of regeneration applied were explained. At Advie the party crossed the Spey and turned upward to another natural plantation and inspected the Forestry Commission's experimental thinning plots. Proceeding still higher, various plantations were found, indications of forests previously cut, in which sheep had once found grazing. This area has once again been replanted. At Nethybridge more experimental plots were seen, and a very fine plantation, twenty to forty years old. To the practical eye it was felt that all the plantations in this district were full of promise, and were likely, in the not far distant future, to uphold worthily the prestige of the famous Strathspey forests of bygone days. At the close of "a perfect day," the President, Mr. E. S. Grant, Altyre, in thanking the Seafield Estate Trustees, expressed the indebtedness of the Society in being granted permission to visit the beautiful woodlands. He also expressed warm thanks to Messrs. Brown and Marshall for so kindly conducting them that day, with a special tribute to Mr. Brown for his hospitality.

Retirement of M. Forestier.—We learn that M. J. C. N. Forestier is retiring from the position of Conservator of the Parks and Gardens of Paris. Those of our readers who have visited Paris and enjoyed the pleasure of walking or driving in the many beautiful open spaces to the west of that city will be able to appreciate the skill and taste of the Curator, but it may not be within the recollection of all that M. Forestier was the creator of the public gardens at Bagatelle, with its Rosery and its collections of Nymphaeas and hardy plants. To his enterprise and energy is also due the organising each year of the international Rose contest at Bagatelle, which has taken place since 1907. His talent for landscape gardening amounts to genius, and his services are everywhere in request; he has laid out gardens, not only in France, but in Spain, Portugal, Brazil, Havana, and other distant countries. He is the author of a monumental work entitled *Parcs et Jardins*, which had a wonderful success, but is now, unfortunately, out of print. Of a kind and friendly disposition, M. Forestier has made many firm friends in the course of his career. His retirement will seem, to those who know his vigour and energy to be unimpaired, a little premature; but there is no doubt that he will continue to serve the cause of horticulture, and perhaps be even more free to do so when he is able to devote himself entirely to landscape gardening, of which science he is one of the most brilliant exponents in the world.

Cemetery Maintenance in Roumania.—There are many cemeteries in Bucarest; they are of large extent, and in the past their management has proved a difficulty. The cemetery of Belo, the largest and most important, was formerly under the administration of the municipality, but much of the service necessary for planting, upkeep of graves, etc., was performed by private nurserymen, and the system left much to be desired. After several unsuccessful experiments, it was taken over with the other cemeteries by the Public Gardens authority, who appointed at Belo a head gardener of first-class skill and energy. The existing houses for the cultivation of bedding plants were increased by nine, and all were devoted solely to the cultivation of plants for the cemeteries, instead of being used, as hitherto, partly to supply the various parks. At each smaller cemetery a head gardener has been appointed, with a proper staff under him, among whom he divides the area to be maintained, and each gardener is responsible for the upkeep and neatness of his own portion of the cemetery. The graves are planted each spring with Pansies, Forget-me-nots, etc., according to the arrangement made with the owner of each grave, and are replaced at each succeeding season. The system is not without defects, and it is difficult to maintain a staff of men capable of carrying it out with the skill and intelligence necessary, but, on the whole, it seems to work better in Bucarest than the more common method of combining municipal ownership and control of the cemetery with private upkeep of each individual grave.

Legacies to a Sundries Firm's Employees.—The late Mr. William Longman Corry, Managing Director of Messrs. Corry and Co., Ltd., horticultural sundriesmen of Covent Garden and Shad Thames, London, left £100 to Mr. John Beale, office manager; £25 each to Mr. H. Collins and Mr. F. W. Vincent; £20 each to Mr. William Austin and Mr. William Davison; £10 to Mr. J. E. Denham, and £80 between other workers of five years' service. Mr. Corry left estate of the gross value of £23,633.

Mr. W. Auton.—The many friends of Mr. W. Auton will be pleased to learn that he has returned home from his visit to the West Indies in the best of health and after a successful trip. He covered a very extensive area, including British Guiana, Trinidad, Barbados, Grenada, St. Vincent, St. Lucia, Dominica, Guadaloupe, Martinique, Montserrat, Antigua, Costa Rica, Central America, Cuba and Jamaica. The object of his visit was propaganda work for the Adco process of making farmyard manure synthetically, and besides getting into personal touch with many planters on their estates, he gave lectures in many of the islands, all of which proved to be of great value to growers. Mr. Auton informs us that lack of organic manure is one of the problems of cultivators in those parts, and with the enormous growth of vegetation the soil is quickly depleted of organic matter, hence the need for constant renewal. There exists ample material for treatment, much of which in the past has been destroyed by burning, but with the use of Adco it is hoped to make full use of plant residues for manurial needs. The eagerness with which Mr. Auton was listened to everywhere shows that the growers are alive to progress in modern agricultural methods, and anxious to give the scheme practical support.

Appointments for the Ensuing Week.—Monday, May 23: Harrogate and District Horticultural Association's meeting. Wednesday, May 25: Royal Horticultural Society's Chelsea Show (three days); National Horticultural Society of France Centenary show (ten days). Thursday, May 26: Paisley Florists' Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Dahlias.*—As this is about the time when Dahlia orders are being executed by the "trade," we have thought it advisable to offer a few remarks respecting the successful treatment of plants thus supplied. Let us, therefore, suppose that a hamper of well-packed Dahlias has just come to hand, containing the numbers and varieties for which due instructions have been given, being the results of our scrutinising observations last autumn. The plants will generally be found carefully tied to a small stick, with cotton wadding employed, to prevent injury from bruising. The pots will be mossed down and securely tied with bast matting, so that under the ordinary casualties of transit no serious damage may occur; yet how often have we found, that if one has been injured, it has curiously enough turned out to be a sort we most prized. In unpacking, be cautious not to expose the plants to the open air an instant longer than is actually necessary; let the operation be performed in your potting shed, forcing, or greenhouse; or, in the absence of these, in the dwelling-house rather than in the open air; and once freed from moss and ligatures, place them immediately in a close frame (if with a little bottom-heat, so much the better), and permit them to remain there for a day or two, until by their improved appearance all signs of confinement have disappeared. With a view to save weight and expense of carriage, it will doubtless be found that these young plants have been sent out in some two-inch pots, so that a speedy shift into a four-inch pot will not only be desirable but necessary, using good soil, and so drained that there may be but little need for at any time disturbing it; replace the plants in the frame, and keep close for a day or two longer, afterwards giving air by degrees, so as to insure robust growth. While all this is going on, look sharply after aphis or green-fly, to which, when detected, give no quarter. In this early stage of pot culture, promote by syringing and general attention to cleanliness a vigorous, rapid and robust growth; for with Dahlias, as with other plants, unless a good and sound foundation be secured, little success will attend the superstructure. We would rather shake out a plant, reduce the fibres, and repot into the same sized pot, than permit a plant to be pot-bound from which we hoped to derive good blooms; therefore, pot on up to planting-out time, rather than keep your stock short of root room. To constrain a plant in that way is to throw it into premature bloom; with ample pot room, stout plants are all but insured; as the time arrives for planting out, the necessary precaution as regards hardening off is, of course, a matter of routine on which we do not intend at present to enlarge, our object being merely to direct attention to the importance of treating young plants well before they are placed in the Dahlia quarter, to which we look forward with all those hopes and fears ever attendant on an exhibiting florist. *J. E., Gard. Chron., May* 22, 1852.

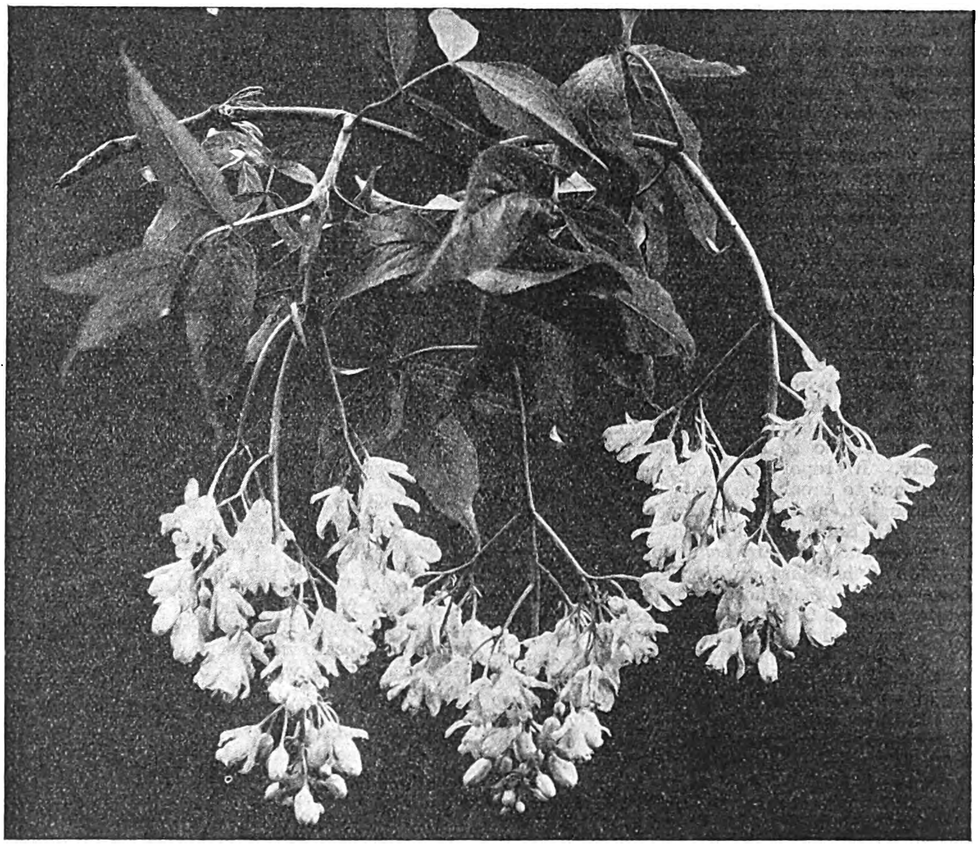


FIG. 165.—STAPHYLEA COULOMBIERI.

R.H.S. Award of Merit, May 10. Flowers white. Shown by Lt.-Col. Messel, Nymans, Haywards Heath. (see p. 344).

Publications Received.—*An Account of the Production and Sale of Grade A Tuberculin Tested Milk at the College Farm*; Department of Agriculture, University College of North Wales, Bangor; price 6d., post free.—*Festschrift der Osterreichischen Gartenbaugesellschaft*, 1827-1927; by Dr. Gustav Klein and Fritz Kratochwjle. Julius Springer, 1, Schottengasse, Wien. Price 4.50 reichsmark.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Cymbidiums.—The newer hybrids of Cymbidiums have flowers of rich colouring suitable for decorative purposes, either when growing on the plants or as cut blooms. They are plants of easy culture and do not require a high temperature. The majority of these Orchids flower during the spring, but many of the hybrids extend the season of blooming much later, and as the flowers last in good condition for a considerable time, they are desirable plants to grow for any purpose. There is no necessity to disturb the roots annually; repotting should only be done when the compost has become exhausted or the plants have outgrown their receptacles. If repotting is considered necessary it should be done soon after the flower scapes are removed, and those which produced their flowers early in the season should be attended to first. The roots are thick and fleshy, and produced freely in a suitable compost, therefore ample pot-room should be provided. The best time to repot Cymbidiums is just as the young growths are about to develop new roots from their bases, for the plants at that stage receive the least possible check from the disturbance.

Compost.—The rooting-medium for Cymbidiums should be of a retentive nature and may consist of equal parts of good, fibrous loam and half-decayed Oak leaves and Osmunda fibre, from which all the earthy particles have been removed, with sufficient broken crocks and silver sand added to render the compost open and porous. The thick, fleshy roots resent a saturated compost, therefore, the drainage material must be ample to allow water to pass away quickly. In repotting, every care should be taken not to break the roots, which should be disentangled, and all the loose, sour material removed. Such species as C. Lowianum, C. insigne and the many beautiful strong-growing hybrids of this class, are best grown in ordinary flower pots, whilst those with pendulous flower scapes, such as C. Devonianum and C. tigrinum, are best placed in pans and suspended from the roof-rafters. Some thirty species are known to science, the greater number of them being found wild at considerable altitudes, therefore an intermediate temperature is the most suitable for the majority of them, but the purely tropical species require a considerable amount of warmth.

Treatment after Potting.—The plants, when thoroughly established, require liberal supplies of water, and when moisture is applied care should be taken to soak the compost completely, which should be allowed to become moderately dry before renewing the application. Watering with weak liquid cow manure will greatly benefit the plants when they are well rooted, and in full growth. During hot weather the plants should be sprayed with clear water on frequent occasions to keep down attacks of red spider and other insect pests.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Brussels Sprouts.—Strong plants of Brussels Sprouts, which have been grown for the earliest supply, may now be planted in well-prepared ground. Choose an open situation, and tread the soil firmly. Dress the surface with soot, and well rake it in. Before lifting the plants from the nursery bed give the roots a good soaking with water. Lift them with a hand-fork and plant very firmly in rows three feet apart, allowing a distance of not less than thirty inches between the plants in the rows. When planting is finished, soak the roots again, and place a small ridge of soot around the neck of each plant; the soot will not only act as a deterrent to slugs, but also prevent flies from laying their eggs at the base of the stem. Use the Dutch hoe freely throughout the season, as hoeing will do much to conserve the soil-moisture as well as assist the growth of the plants and keep down weeds.

Carrot Fly.—Where the Carrot fly is likely to be troublesome, preventive measures should be taken. Dry sand, mixed with paraffin and sprinkled between the rows will often have the desired effect. The application should be repeated so soon as the smell goes off. Paraffin emulsion or Quassia extract are other good preventives. Spray the foliage of the young plants with either of these specifics during the late evening, about every week or ten days. Frequent dustings with old soot will also be found useful in warding off the fly.

Peas.—The earliest varieties are in flower. Those growing on warm borders should be mulched, especially if the weather is dry, and the roots fed with liquid manure so soon as the pods have set. Use the Dutch hoe freely between the rows of later varieties and sprinkle the soil with superphosphate, the benefit of which will be seen later in the better filling of the pods. Apply a mulch in good time to all Peas growing on very light, shallow soils. Continue to sow for late crops until June 10.

Cauliflowers.—The heads of the earliest plants are forming, and at this stage the plants will be greatly benefited by liberal supplies of liquid manure at the roots. Should the weather be dry, mulching the roots with manure will be very beneficial to the plants.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Begonia nitida.—Begonia nitida and its variety alba, are two useful plants for the intermediate house, and may be had in flower practically the whole year round. They are useful either as pot plants or for planting out, and training to pillars in a warm greenhouse. Well cultivated specimens will attain a height of four feet to five feet. The flowers have a pleasing perfume and are freely produced. Cuttings may be procured at the present time and inserted in an open compost in which they will root very quickly if placed in a warm propagating frame for a short time.

Winter-flowering Begonias.—Propagate varieties of the Mrs. Heal, Optima and Exquisite type from cuttings inserted in a light, open compost, when they are about three or four inches in length. Basal cuttings usually make the best plants and should, if possible, be selected, but sometimes these are not obtainable, in which case good results may be obtained from top growths, provided they are clean and free from mite. These Begonias root readily in a warm propagating case, but it is necessary to remove the light each morning to allow condensed moisture to dry up. When the cuttings are rooted, grow the plants on in an intermediate house.

Dieffenbachia.—Plants of Dieffenbachia that have grown tall and lost their lower leaves may be made into compact specimens again by the operation known as ringing. Have ready a quantity of moss and a small amount of sandy soil, so that the part where the stem is cut may be covered immediately. The plants should then be placed in a warm temperature and the moss kept moist until roots form. When it is seen that roots are penetrating through the moss, the tops may be removed from the parent plant, placed singly in small pots, and stood in a propagating frame for a short time. If the plants are shaded from bright sunshine they will soon become established in the new compost, and may then be removed and stood on a moist stage and grown on in a fairly high temperature. Leggy Dracaenas may be treated in a similar manner.

Richardias.—Arum Lilies that have been grown under cool conditions in pots have passed out of flower and may be stood in a sheltered position out-of-doors. If the plants are growing in borders it will be well to withhold water from the roots to some extent before lifting and placing them outside. The roots should be protected by a covering of soil and kept watered for a short time, when moisture may be withheld gradually to allow the plants a complete rest. Some growers plant Richardias in borders out-of-doors after they are sufficiently hardened and this method is suitable, provided the soil is favourable to them, then, when they are lifted again early in September, the roots will be in good condition for placing in large pots or in borders specially prepared for them.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Figs.—The earliest fruits in the first house, will now be ripe or approaching that stage, when the syringe should be used sparingly, especially on dark, dull days, when a free circulation of fresh air cannot be maintained. Syringing, however, cannot be dispensed with, as the fruits of the second crop, which are now well advanced, must be kept swelling by the aid of atmospheric moisture. Keep a sharp watch on the weather, and when it promises to be fine, syringe the trees copiously without wetting the ripening fruits, or immediately after the ripe fruits have been gathered. Syringing should be done cautiously in the afternoons, but the walls and floors may be well-damped with diluted liquid manure. As Figs revel in root moisture, the supply of tepid water and diluted liquid manure at the roots should be generous, and a temperature which suits Muscat Grapes should be maintained and regulated by day and night ventilation. As the first crop finishes, a few of the shoots may need stopping to divert the sap into the second crop, which may also need thinning. It is not, however, a good plan to pinch the shoots much in advance of the second crop, unless the growths are very strong.

Melons.—Early Melon plants, the fruits of which have been thinned to the requisite number, should be well-fed with warm, diluted liquid manure and syringed freely when the house is closed in the afternoons. Melons will benefit by very liberal watering from the time the fruits are the size of eggs, until they cease swelling, when the amount of moisture should be reduced gradually, otherwise the fruits will be liable to crack and be deficient in flavour. Plants in pots plunged to their rims in bottom-heat will require watering almost every day. Such plants should be top-dressed with loam mixed with bone meal, and watered occasionally with diluted liquid manure. When the fruits are well netted and colouring, the use of the syringe should be discontinued, but a brisk top and bottom heat, with a liberal circulation of air, should be maintained in the house.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Ornithogalum nutans.—This bulbous plant in its quiet colouring of green and greyish-white, is a very charming plant for naturalising or for planting in large beds of shrubs. The plant increases freely by bulb division and is also easily raised from seeds. Ornithogalum umbellatum (Star of Bethlehem), although a much smaller-growing species, is very beautiful and useful for naturalising. Both plants are native of Europe, but are naturalised in several parts of Britain.

Dwarf Cytisuses.—Several dwarf Cytisuses are very useful for furnishing the rock garden or for covering dry, sloping banks. Cytisus Beanii gives a mass of yellow during the end of April and the beginning of May; its pungent fragrance in the hot sun is perceptible a long way off. C. kewensis, C. decumbens, C. pilosa and C. Ardoinii are all excellent for the rock garden, and they may all be propagated from cuttings.

Euphorbias.—These plants are generally not regarded as being of much importance in the garden. There are, however, several species that are very showy during April and May. E. Characias and E. Wulfenii make large bushes of sub-shrubby character, and are very effective on large rockery slopes or in semi-wild parts of the garden. E. palustris and E. epithymoides are herbaceous species; their yellow bracts are very showy during the spring. E. epithymoides grows about twelve inches to fifteen inches high, and is very effective as a spring bedding plant; it may be increased by division or from seeds.

Biennials.—In the south, at least, May is somewhat early to sow the bulk of biennials, but those that require a long season of growth should be dealt with at this time. They include Sweet Williams, which may be sown out-of-doors, or in boxes in cold frames; I prefer sowing the seeds very thinly out-of-doors, as there is then much less risk of the plants being spoiled by overcrowding before they are transplanted. Lupinus polyphyllus should be sown thinly in lines out-of-doors, also Hollyhocks, which are best raised from seeds each year. If the weather is hot and dry it may be necessary to shade the soil by means of branches, until germination takes place. Polyanthuses, Aquilegias and other plants raised indoors earlier in the season should now be planted out in the reserve garden. Polyanthuses and other Primulas need a cool, rich, moist root-run and partial shade for at least a portion of the day.

Rhododendrons and Azaleas.—So soon as possible after they have finished flowering, these plants should have the old flowering trusses removed to prevent the formation of seeds. The development of seeds is a great strain on the plants, greatly restricting their growth and future flowering. Both Rhododendrons and Azaleas are benefited by an annual mulch of decayed leaves, but care is necessary in this respect, for if too thick air is excluded from the roots, while if piled too deeply around the stems it may seriously injure, or even cause the death of the plants.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet, Middlesex.

Fruit Prospects.—In these gardens, there is a prospect of a good crop of Apples. The weather seems fairly settled and dry, so that the pollen has every chance to disperse and fertilise the blooms. Last year it was just the reverse; the cold, wet weather experienced during the flowering period not only washed away the pollen before it had time to fertilise the flowers, but the latter was kept in a wet, miserable state for days and without a particle of sunshine. Pears are, in many instances, setting freely, and the same is true of Sweet Cherries on walls; Morello Cherries are a perfect picture of flowers. Peaches promise to set a very fair crop. Strawberries have suffered more or less, many of the individual buds having been blackened, but several that are less forward seem to have escaped injury. Plums are not so promising, and I fear that the crop will be a light one.

Disbudding.—The growth of Peaches and other fruit trees is somewhat rapid, and the disbudding and removal of useless young shoots need constant attention. At the first operation, thin the growths sparingly to prevent a check to the tree; rather do the work on several occasions. Retain any shoots that are needed for furnishing the tree and for fruiting next year. Make sure of a good leader where there is room for extension, and retain suitably-placed shoots at intervals all over the trees for filling bare spaces.

Sweet Cherries.—Nearly all varieties of Sweet Cherries here, growing on west and east walls, are looking very promising for fruiting, but the fruits may turn yellow and drop later. Some amount of disbudding should be done, and shoots not required for extension may be stopped at the fourth or fifth leaf, but retain and train in those that are needed for extension and for fruiting next season. Two-year-old shoots usually produce very fine fruits. Keep the foliage clean and free from insects by syringing the trees early and before aphis and other pests multiply. Quassia extract, Abol and XL All are all reliable insecticides. Do not overlook the needs of the roots; water them freely if necessary. Trees that have been planted late, or large trees recently lifted, should be kept shaded and syringed until the new roots have developed sufficiently to supply sufficient sap to the trees.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Cinerarias, Primulas, etc.—Seeds of these indoor plants should now be sown in order to secure good specimens for next season's display. They may be sown in any good compost, and where several varieties are grown, a six-inch pot will accommodate a large number in the early stages. Many beautiful forms of Cinerarias come remarkably true from seeds, and these are, to a certain extent, taking the place of the mixed packets formerly purchased, as they make it possible to grow the requisite number of plants of any particular shade that may be in demand. Among the blue forms there are several of intermediate habit, such as Reading Gem and Forget-me-not Blue, which, when associated in the greenhouse or conservatory with well-flowered plants of Primula kewensis, make a pleasing contrast. Where a reddish shade is appreciated, a good strain of the variety Matador may be recommended; the colours vary from brick-red to deep crimson, with many intervening art shades of the greatest beauty. Among Primulas there is also a wide choice of variety and colour, and some of the named varieties of P. sinensis are exceptionally beautiful, but for general usefulness the stellata Primulas are invaluable, as they are easily grown and continue to throw up flowers over a long period. The Star Primulas may be obtained in white, pink, blue and crimson shades, which can be depended on to come true to colour from seed. P. malacoides is another very useful plant for furnishing the greenhouse in early spring, and recent improvements in this section include such fine varieties as Achievement and Advance. The ordinary P. malacoides is hardier than most people are aware, and may be grown quite satisfactorily in the rock garden, in the more favoured districts.

Humea elegans.—This old-fashioned plant is again being grown largely, and the present is the best time to sow the seeds. The seedlings need careful attention in their initial stages, as they are peculiarly liable to damp off, but if pricked out singly in thumb pots so soon as they are ready for transplanting, in a compost to which some old lime rubble has been freely added, and grown under cool conditions, they soon become established. Their future culture simply consists in repotting the plants from time to time as they require it, wintering them in five-inch or six-inch pots well-filled with roots, and finally transferring them in early spring to nine-inch or ten-inch pots, always supplying the requisite lime rubble at each repotting. Humeas grown in this manner may be employed as dot plants in the scheme of summer-bedding, or they may be used to decorate the conservatory during the summer and autumn, where their graceful, feathery plumes remain fresh for a long time.

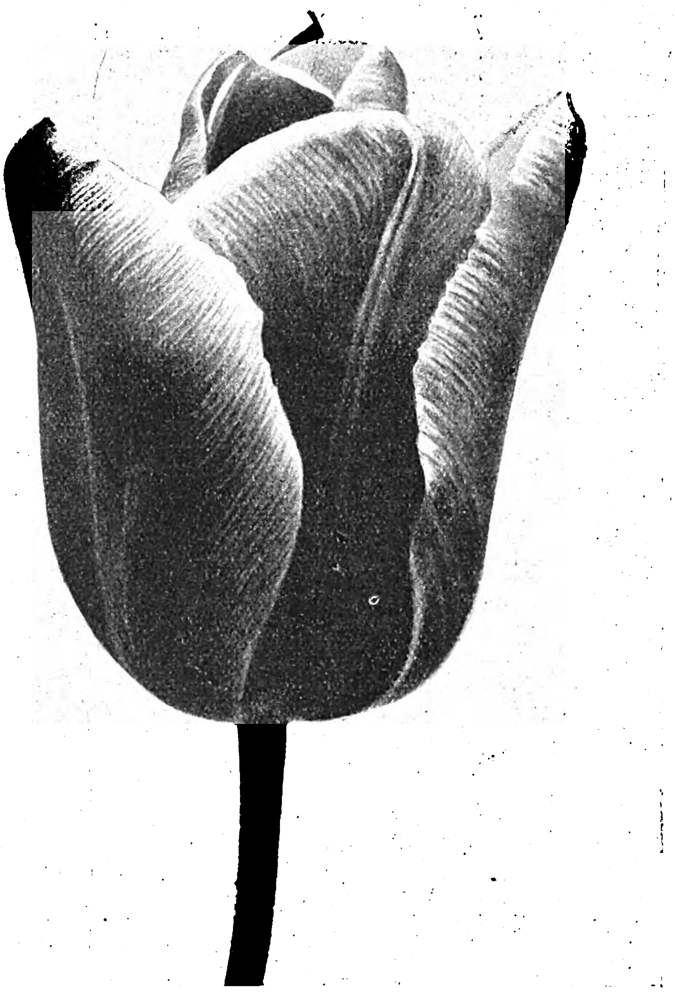


FIG. 166.—TULIP BRONZE WINGS.

R.H.S. Award of Merit, May 10. Flowers ruddy-bronze with golden-bronze shading. Shown by Sir Daniel Hall, Merton. (see p. 345).

BULB GARDEN.

RAISING LILIUMS FROM SEEDS.

I am not convinced that I have found the best method of raising Liliums from seeds, but I give my experiences in the hope they may prove helpful to amateurs. When I began to raise Liliums from seeds I did so in the orthodox way. The seeds were sown in March, under glass, either in boxes or pans, filled with fibrous, loamy soil, and the young plants were, in due course, pricked out into a cold frame or, in the case of hardy, quick-growing species, into a sheltered position in the open. It did not take long to prove that this method was wrong. Liliums, especially seedlings, resent disturbance, and the transplanting, I found, gave a check from which they took a long time to recover. It became evident that checks of this kind must be avoided. I am of the opinion, too, that the greenhouse is not the right place in which to raise hardy Liliums.

There is, of course, the alternative method of sowing the seeds in small pots, and this practice certainly enables one to grow the plants on without interference, but where Liliums are raised in large quantities it becomes a somewhat tedious process even if it were a good one. I have tried sowing the seeds in pots—little, square pots, made from peat, and when the plants were hardened off they were transferred, pot and all, to the garden. I have, however, discarded the use of such pots. It seemed, to begin with, to solve the problem of handling seedling Liliums in a satisfactory way and avoiding disturbance of the little plants at a critical stage of their existence, but I found that the roots did not take kindly to the soil and were not inclined to leave their original peaty home. I found, moreover, that the peat tended to become sour and it did not decay in the soil. The result was that the plant contained in the receptacle made of that material soon became unhealthy.

Mr. J. Coutts, of Kew, has written that: 'Personally, I doubt if peat is necessary for Lilies, for there is nothing more poisonous when it gets into bad condition. I would rather advise the use of plenty of good leaf-soil, peat being safe only when it is well permeated with the roots of Rhododendrons and similar shrubs." I fully agree and do not advise peat for the cultivation of Liliums under any circumstances. I nearly lost a fine batch of L. centifolium through growing the seedlings in peat pots, and it was only by removing them therefrom in good time that the plants survived. The peat had become sour and poisonous.

I now sow all my Lilium seeds in the open ground. Last year, in April, for example, I sowed batches of L. japonicum (Krameri), L. auratum and its variety platyphyllum, L. croceum, L. Parryi, L. regale, L. Willmottiae, L. sutchuenense, L. canadense, L. Davidii, L. Martagon album, L. M. Cattaniae, L. M. dalmaticum, and several others in the open in a sheltered position, where drying winds in spring would not injuriously affect the young seedlings. L. regale was the only one to put in an appearance last year, but in March of this year a splendid crop of seedlings is the result. The only fault I have to find with this particular bed of seedling Lilies is that the seeds were sown too thickly. We experienced disastrous and almost unprecedented weather conditions during the closing days of April, but, fortunately, in anticipation of late frosts, I top-dressed the bed of seedlings with well-decayed leaf-mould and I do not think they have suffered any damage. The seedlings will not be disturbed until autumn. In late September they will be planted in their new quarters in the north.

In raising Liliums from seeds, therefore, I think the best practice is to sow in the open. I have been doing so in April, but Mr. Coutts thinks I should do so in the autumn. I intend to try that plan this year, and I think it will mean the saving of a season. May is quite a good month in which to sow seeds, so that anyone who wishes to make a beginning has still ample time to do so.

A portion of the garden, that is fairly well sheltered from cold winds, should be selected for the sowing of the seeds. A dressing of well-rotted cow manure (it must be old, thoroughly decayed material) should be put in six inches below the surface of the soil. It sounds heretical to advise the use of manure in the cultivation of Liliums, but some time ago Mr. Grove advised me to try this, and I do not regret taking his advice. Manure certainly makes a wonderful difference to the roots and growth but it must be well-decayed. If manure in a proper condition is not available, well-decayed leaf-mould will afford a satisfactory substitute. Drills not more than half-an-inch in depth should be made for the seeds, and care should be taken to sow thinly. Keep the surface free from weeds, and if no seedlings put in an appearance this season there is no need for alarm. In spring, top-dress the bed with half-an-inch of leaf-mould or light soil, and allow the plants to grow on without disturbance for at least one season.

Some Liliums are certain to show no growth until the following spring. L. monadelphum and its variety Szovitzianum, and L. japonicum, are notable examples. L. auratum and its variety platyphyllum also, in my experience, show no growth for a year when sown in the open. It has been said that seeds of L. pomponium germinate rapidly, and while this may be true of the form generally grown under this name, I find it is not the case with L. pomponium vernum. The seeds of this beautiful Lily show no growth for a whole year, and I am not writing of imported seeds but of home-saved seeds, sown in the following spring. In any case, the grower need not be astonished if he sees no results the first season. Let him wait until the following spring. I do not think that frost will harm the seeds. If the soil is well-drained there will be no trouble, but it is fatal to sow seeds in soil that is likely to become waterlogged. *George M. Taylor, Edinburgh.*

LILIUM LONGIFLORUM VAR. SINENSE.

On p. 314 you reported the receipt of blooms of a fine form of L. longiflorum to which the varietal name sinense had been attached on the ground that the bulbs had been collected (for the Yokohama Nursery Company) in an entirely new locality in Western China.

May I venture to suggest that it would be advisable to hold the varietal name in suspension till the details of its claim to stand have been verified. L. longiflorum has not yet been found in Western China, and the ascription of the variety in question to that country is possibly the result of an unintentional confusion between one end of China and the other.

A Lily seemingly closely akin to L. longiflorum has been sent from Eastern China (Hongkong) to Yokohama and to the writer among others, but no specific identification of it seems to have been published. So much confusion has been caused, and students of the genus have been so hampered in the past by the incorrect geographical names bestowed on varieties as to justify a plea for the fullest investigation into the merits of new varieties before they are publicly launched. L. longiflorum var. formosum is a case in point, for it has not the remotest connection with Formosa. Another variety —Harrisi—has been equally wrongly named, for until an enterprising American nurseryman bestowed his name upon it, the variety had been known as eximium, still, as ever, its correct name. *A. Grove.*

ALPINE GARDEN.

SENECIO TYROLENSIS.

A few of the Groundsels are suitable for the rock garden, including the rare Senecio tyrolensis, which I was glad to see offered recently at a moderate price. The plant flowers in July and makes a bright patch in the rock garden with its six-inch-high stems carrying flowers of a most brilliant orange. The foliage, also, is decidedly attractive in its bright green colouring and its Fern-like form.

S. tyrolensis is not difficult of cultivation, but it needs a warm spot in the rock garden and, while lime may not be absolutely essential for its welfare, it may well be kept in mind that it comes from the limestone of the Tyrol, and that it is always well to give consideration to a plant's preferences for or against lime as shown by its natural distribution. *S. Arnott.*

ANDROSACE LAGGERI.

By some, this plant is regarded as a geographical form of A. carnea, and is listed as such in the Kew *Handlist of Rock Garden Plants.* Its native habitat is strictly confined to the Pyrenees between the altitudes of 1,800 and 2,400 metres. The plant forms close tufts of bright green foliage; the leaves are very narrow and decidedly more aciculate than those of A. carnea, while the glaucous appearance, which is a characteristic of this latter species, is absent.

The pale pink flowers are produced in March and April, and when they first expand they are sessile on the end of the shoots, but gradually the flower stem lengthens, and at the same time the pedicels of the flowers also, thus forming a tiny umbel of flowers on a short stem. When covered with flowers, A. Laggeri is a very charming feature in the rock garden.

It succeeds in a compost containing an abundance of granite chips, and needs a dry, sunny situation. *T. H. Everett.*

HARDY FLOWER BORDER.

ANTHEMIS TINCTORIA KELWAYI.

This garden form of the indigenous Chamomile is worthy of a place in the hardy flower border; the golden-yellow, Marguerite-like flower-heads are abundantly produced from June to September, giving a most welcome patch of very bright colour over a long period.

It is extremely effective when associated with grey-foliaged or blue-flowered plants, and is, indeed, a first-rate border plant. This Chamomile grows well in any ordinary good soil and is most easily increased by division of the roots.

Another good form is the one known as E. G. Buxton. The comparatively little-known A. Triumfettii is a richly-coloured and desirable plant. There is also a white variety of A. tinctoria named alba, a cream form, pallida, and the lemon-yellow sulphurea.

These Chamomiles are excellent plants for the production of cut flowers. *A. E. R.*

TREES AND SHRUBS.

RHODODENDRON LEPTOTHRIUM.

This interesting Chinese Rhododendron belongs to the small group known as the Ovatum series, which also includes R. Bachii, R. ellipticum, R. hongkongense, R. ovatum and R. Vialii. The type of the series, R. ovatum, was discovered and introduced by Fortune in 1844, and is confined to the extreme east of China (Chepiang and Chusan). The plant introduced by Wilson from Hupeh in 1900 is R. Bachii.

R. leptothrium, which means "with thin leaves," is a native of North-west Yunnan. Forrest first collected it (No. 12,845F.) in open thickets on the Mekong-Yangtze divide, in July, 1914, at an altitude of 10,000 to 11,000 feet. In June, 1917, Forrest met with the species again (No. 13,881F.) on the Li-ti-ping, at an altitude of 11,000 feet.

Native bushes are described as varying from six feet to twenty feet in height. It is a freely-branched, evergreen shrub of bushy habit, with oval-lanceolate leaves, one-and-a-half inch to three inches long, and three-quarters to one inch wide in the centre, tapering to both ends; dark green on both surfaces. The deep rose-coloured flowers, with crimson spots or markings, are almost always borne singly in the axils of the leaves towards the ends of the shoots. An inch or more across, they are five-lobed, deeply cut, with five stamens and a large five-lobed calyx.

The subject of this note and Wilson's Hupeh plant, R. Bachii, are both flowering at the present time in the new Chinese Rhododendron House at Kew.

The accompanying illustration, Fig. 168

represents a spray from the vase of this species, which was a prominent feature in the group from J. C. Williams, Esq., Caerhays, Cornwall, at the Rhododendron Show on May 3 and 4. *A. O.*

DAPHNE RETUSA.

The comparatively new Daphne retusa (see Fig. 167), for which Sir William Lawrence received an Award of Merit at the Royal Horticultural Society's meeting on April 26, forms a small, densely-branched shrub, growing about two to three feet high, and produces clusters of flowers at the ends of the branches during early May. The species is a native of Western China, and was discovered by Mr. A. E. Pratt at 13,500 feet elevation; it was found by Wilson in the same place in 1901, and Wilson introduced it to the Coombe Wood nursery of Messrs. James Veitch and Son, where it flowered in 1909. Like those of most of the Daphnes, the flowers are very fragrant; they are whitish with rosy-purple tubes. The species has an affinity with D. odora, but differs in its much smaller, notched leaves and shaggy young shoots and flower stalks. Daphne retusa is illustrated in *The Botanical Magazine*, t. 8430.

ABIES PECTINATA.

(See Supplementary Illustration).

In some countries, Bosnia and Austria, giant Silver Firs have been met with two hundred feet high, but in Great Britain we have nothing so truly magnificent as this; 135 feet, or possibly 140 feet, seems to be their limit. There appear to be a few specimens of 130 feet, perhaps a few a little taller, and I daresay if the country was thoroughly searched, a goodly few would be found to measure about 120 feet. It takes a very tall looking tree to exceed a carefully measured height of over a hundred feet.

So far—I am only referring to trees planted in goodly numbers—the Silver Fir reigns supreme in height amongst competing contemporaries, but in tree life, as in other walks of life, the giant of one day may wake up to find itself relegated to the ranks of the mediocrities.

The common Silver Fir (see Supplementary Plate) was introduced to Great Britain in 1603. It probably takes about 150 years to arrive at full growth and it has had plenty of time to do this, and very well has it come through the ordeal. Let it, however, take warning from the almost invariable fate of the record holders. There is the British Columbian Abies grandis, a tree that is said to reach a height of 300 feet on the coast line of America. It only arrived here in 1850, but by its appearance and the rate of its growth, it looks as though it fully intends to live up to its title of the Giant Fir of the West. Then there are other candidates for fame, *i.e.*, trees introduced almost at the same time, the middle of the last century, namely, Sequoia gigantea and S. sempervirens, both of Cyclopian magnitude. Both have attained heights of over 300 feet in their own countries, and the big Wellingtonia of the Mariposa Grove, through which many of us have driven in a coach and four, measures—if I remember aright—thirty-three yards round. Perhaps it is hardly fair to drag these Sequoias into the question, since a bountiful nature has assigned to them as an allotted span an average life of 1,500 years.

Besides these rather abnormal monsters of tree life, some of the new Chinese Conifers, at present only a few feet high and fifteen or so years of age, look as though they may out-tower their Anglicised cousin, A. pectinata. A. Forrestii looks like making a big tree by its precocious rate of growth; that is to say, if it escapes the ravages of the Aqaricus melleus.

While the Birch tree is accredited with the title of Lady of the Woods, the Silver Fir, though it may be here and there overtopped by an unusually well-grown Douglas Fir or Sitka Spruce, has certainly been accorded the dignity of Colossus of our Forests.

The leaves and other characteristics of this well-known tree call for but few words. Abies pectinata belongs to a group of a section of Silver Firs that affect the courtesy title and description of truly pectinate; that is to say, the leaves are arranged after the manner of the teeth of a comb, and are supposed to display a flat and horizontal effect. There is one little reservation with regard to this well-known description of them that may not be so universally known, and to which I will make brief reference. For the most part, those interested in these sort of identifying processes, learn their lesson, and bestow their attention upon the leaves of the branches within their reach. The leaves on the top, however, do not, in this case, live up to the reputation of the leaves on the lower branches, and at times vary most perplexingly and confusedly.

Once, here, a well-remembered gale, on Boxing Day, 1915, brought crashing to earth, in the short space of twenty minutes time and the narrow space of an acre in extent, some forty or fifty well-grown trees. Amongst the victims was a group of seven large Silver Firs, which the Royal Agricultural Society's England Plantation Competition judges reckoned to be the largest timber-containing group of the sort they had ever seen, although one member stated he had seen larger individual trees. The average height of the seven turned out to be between ninety-five feet and ninety-six feet; the highest was 109 feet. They registered an average measurement of 274 cubic feet. But why lament over these dead heroes! The only consolation it gave to observers was a chance of comparing the leaves on the top of the tree with those below. Those on the top displayed a more radial arrangement, such as A. cephalonica, A. Pinsapo and the new Chinese A. recurvata, all of which have been accorded the honor of a separate botanical section. Also they were shorter and stiffer than those below, and inclined to be pointed at the apex instead of orthodoxically rounded and notched, as well as unorthodoxically radially instead of horizontally and pectinately arranged.

The worst of these extra big trees is, when the Fates and the Furies uproot them and hurl them to earth, they are very difficult problems to deal with. They call for " all the King's horses and all the King's men," or more, literally, all the best tackle and power to take them to a place of execution. Hence it is that even timber dealers evince rather a languid desire to cope with them; and, worse still, to pay those prices for them that our commercial minds yearn for. Nor, am I afraid, are the converted planks sought after so much as some. Their place seems in the approbation of market values, to be between those of the Scots Pine and the Spruce. Although the wood is reckoned to come out well under watery experiences, they are, to put it briefly, preferred as boards rather for indoor than outdoor work.

The cones pass through three colour stages; at first green, then red, ultimately brown. They grow, for the most part, on the high branches, approachable enough for monkeys, chipmunks and squirrels to be on intimate terms with, but difficult for man to obtain. The cone collector, too, has to bear in mind the warning motto, *carpe diem*, for, suddenly, when ripe, they dehisce and scatter their contents to the four winds of heaven. So well-known is the Silver Fir that it is hard to write anything new about it, or even to present what is so well-known in a novel manner.

In bidding good-bye to this subject, I would add that these trees have been very good friends to our landscape scenes, and quite good friends to our estate works. *Chas. Coltman Rogers, Stanage Park, Radnorshire.*

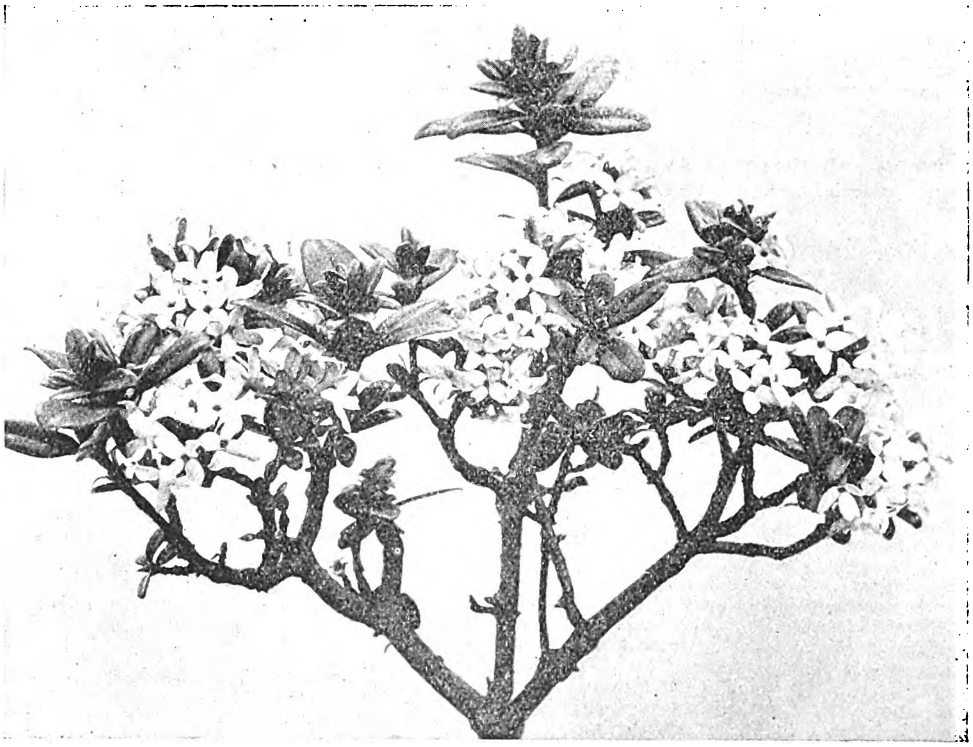


FIG. 167.—DAPHNE RETUSA.

R.H.S. Award of Merit, April 26. Flowers white, shaded with purple.
Shown by Sir William Lawrence, Bart., Burford, Dorking.

EXOCHORDA WILSONII.

This plant, which is of comparatively recent introduction, is a very beautiful subject for a sunny situation, either in the shrub border, or as an isolated specimen on the grass. Like E. macrantha, it is a very striking plant and an excellent subject for training against a south or west wall.

The pearl-like buds expand into blossoms of snowy white, and are fairly persistent; the flowers are, I think, even more beautiful in the bud stage than when fully expanded, a peculiar grey sheen greatly adding to their attractiveness. The flowers are faintly but pleasingly fragrant.

The foliage of this deciduous shrub is of a light and pleasing green, in pleasing contrast to the white flowers; the flowering season is early May.

E. Wilsonii is not fastidious as to soil and will grow satisfactorily in well-drained loam. *Ralph E. Arnold.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER, *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Local News. -*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

IDEAL GARDENS AND PLANT LORE.

I.—A GARDEN OF ADONIS-FLOWERS.

(*Concluded from page* 266.)

To resume our study of the flowers relating to Adonis, I take next the Flos Adonis. The name Adonis-Flower, by which that of Flos Adonis is translated, was applied by Linnaeus to the Pheasant's Eye (Adonis autumnalis). The name occurs in Merrett's *Pinax* of 1667. The Germans, however, prefer to give the name of Little Blood-drops or Blüts-Tröpfchen to another species of the same genus (A. aestivalis), known as the Summer Adonis-flower. This is the plant which, as Sibthorp has shown, grows wild in Greece, as it does also in Germany and Italy. In Palestine, likewise, there are numbers of plants belonging to this genus, and as Syria is the home of the Adonis legend, the Pheasant's Eye has a strong claim for admission into our Garden of Adonis.

On referring to my *Flowers and Flower Lore*, published in 1884, I find the following:—

> "Bion, in his epitaph on Adonis, represents the Rose as springing from the blood of that god, as the Anemone sprang from the tears shed over him by Venus. This, in Archdeacon Hare's opinion, led to the German application of the name Adonis-blume, or Adonis' flower, sometimes to the Anemone, sometimes to the Red Chamomile, which somewhat resembles the Anemone, and might easily be supposed to be sprinkled or tinted with blood."

Turning again to the Venerable Archdeacon's notes, I find that he gives us no clue to the botanical name of the plant, which he speaks of as the Red Chamomile. It may, however, be traced to our ever-helpful friend, Gerarde, who has the following note in Chapter 80 of his *Herbal*, entitled, "Of Adonis Floure," of which he describes two forms. "The first (he states) hath very many slender weake stalkes, trailing or leaning to the ground, set on everie part with fine, jagged leaves, very deepely cut like those of Camomill, or rather those of May-weed, upon which stalkes do grow small red flowers, in shape like a field Crowfoot, with a blackish greene pointell in the middle, which being growne to maturitie turneth into a small greenish bunch of seeds, in shape like a litttle bunch of Grapes. The root is small and threddie. The second differeth not from the precedent in any one point, but in the colour of the floures, which are of a perfect yellow colour, wherein consisteth the difference."

He then proceeds to discuss the names. "Adonis floure is called in Latin Flos Adonis and Adonidis; of the Dutchman (*i.e.*, by the Germans) Feldroszlin; in English we may call it Red Maythes, by which name it is called of them that dwell where it groweth naturally, and generally Red Camomill. Our London women doe call it Rose-a-rubie." Many of the species have yellow blossoms, so that the two we have mentioned make the loudest call because their flowers are red.

As an illustration of the confusion which may result from the popular use of names unaccompanied by the botanical term, it may be noted that Lyte speaks of the autumnal Pheasant's Eye (Adonis autumnalis) as the Purple Chamomile, a name which we find in Turner applied to the Starwort (Aster Tripolium, L.).

THE RED ROSE.

With how many legends relating to war and bloodshed the red Rose is associated it would be impossible to say; but certainly this favourite flower is inseparably connected with Adonis and Venus or Aphrodite. One version has it that the Rose sprang from the blood of Adonis, while the Anemone or Wind-flower arose where the tears of the goddess fell.

> "But gentle flowers are born and bloom around
> From every drop that falls upon the ground.
> Where streams his blood, there blushing springs the Rose,
> And where a tear has dropped a Wind-flower blows."

Moschus, Bion in these lines, and other poets tell us either that the Rose sprang from the blood of Adonis, or that its white petals were changed to red thereby. From Catullus we learn that the Rose is red from blushing for the wound which it produced when the goddess trod on its thorns in hastening to save her lover.

> "Her step she fixes on the cruel thorns;
> And with her blood the pallid Rose adorns."

But there is so much of a similar nature in the plant-lore of Greece and Rome that we must hasten to our next subject:—

THE POMEGRANATE.

It is Ovid who teaches us that the Pomegranate must have a place in our Garden of Adonis.

> "Short time ensued till where the blood was shed
> A flower began to rear its purple head;
> Such as on Punic Apples is revealed,
> Or in the filmy rind but half concealed."

With the latter allusion we may compare the references to the Pomegranate in the *Song of Solomon*. Some authors use this plant, named Rimmon by the Hebrews, to illustrate a closely related story, and as both legends refer to the neighbourhood of Damascus, Adonis and Agdestis may have been confused the one with the other, as we shall see later under the Almond. Referring to the latter, a German writer on the mythology of plants says that "aus seinem Blute entsprosste der Granatbaum mit seinem schönen Früchten." This plant fills a large place in the folk-lore of many lands, and as we stand by its side in our Adonis Garden we shall find it instructive to read and study some of the many legends placed on record.

SANTOLINA.

Much confusion exists in reference to this, as with the Adonis-flower already named. The reason is that botanical terms are translated into popular language in different ways, and that one every-day name is frequently applied to different plants. Among the Compositae we find a genus of plants which bears the name Santolina. Literally translated this would be the Sacred Flax, but with the true Flax it has no connection. In some works the English name for it is Lavender Cotton, and the plants possess qualities similar to those of the Tansy and Wormwood. Pliny and Theophrastus speak of Santolina in connection with the Gardens of Adonis, and it is probable that the plant was one of those which the ancients used in their rites relating to this popular diety. Santolina incana is sometimes spoken of as Silver Lavender. The brilliant crimson or Scarlet Flax which is so popular to-day in the gardens of Rome and other Italian cities would be a very appropriate plant to bear the name of Sacred Flax, if we are to confine ourselves to blood-coloured blossoms; but I do not find that this has ever been admitted into the list of Adonis flowers.

Another plant which has been named in this connection is

THE LARKSPUR;

on the ground that this was the flower which the poets intended when they spoke of the Hyacinth. Here, once more we are in the midst of confusion. The Hyacinth is linked on to a legend similar to that of Adonis, and has a wealth of poetry and mythological lore associated with it which cannot here be recorded. We endorse the words of Miss Kent, however, when, discussing the question of Adonis flowers, she states that there are, in addition to the Pheasant's Eye, "other flowers which lay claim to this illustrious origin; the Larkspur is one," but the claim is not so strong as in many other cases. Since we wish our garden to contain every plant which can be related in any way to Adonis, we shall admit the Larkspur to a place, all the more readily because it has of recent years been brought to the highest state of perfection.

THE VERNAL ADONIS.

The allusion to Miss Kent, and her instructive *Flora Domestica*, recalls the fact that she mentions this also under the name Hellebore d'Hippocrate, as well as the Apennine Adonis and a shrub Adonis which is a native of the Cape of Good Hope. These, however, would only find a place here, because they belong to the genus Adonis, and not on account of their history, colour or legendary associations. To Shakespeare, however, we are indebted for the addition of

THE VIOLET.

In "Venus and Adonis" the bereaved goddess is represented as reproaching Death for having robbed her of her beloved, so full of beauty and sweetness that he imparted these to the Rose and Violet.

> "What dost thou mean
> To stifle beauty and to steal his breath,
> Who when he lived, his breath and beauty set
> Gloss on the Rose, smell to the Violet."

That is surely one of the most graceful tributes to Adonis that has ever fallen from a poet's pen, and thanks are due to our great dramatist for enabling us in this way to enrich our little garden plot. Nor must we overlook our further debt to Gerarde, who enables us to add yet another plant to our list.

THE HIBISCUS.

The Changeable Rose (Hibiscus mutabilis) is well-known, but there is another species named by some the Venice Mallow, by others Mallow of an Hour, or Good-night at Noon. Gerarde remarks that it should rather be Good-night at Nine; "for this beautiful flower opens at eight in the morning, and having received the beams of the sun, closes again at nine." He then adds:

> "Ovid, in speaking of the Adonis-flower, is thought to describe the Anemone, or Windflower, which we rather deem to be this quick-fading Mallow; for it is evident that Adonis-flower, and all under the title of Wind-flower, last more than one day; but this is so frail that it scarcely lasts an hour. . . . Doubtless, the plant was mistaken by the poet, considering the fragility of the flower, and the matter whereof it sprung."

The Cistus, or Rock-Rose.

It must be noticed, however, that another flower, the Cistus, is held by some to be the flower which best accords with the fugacious bloom introduced by Ovid along with the Pomegranate in his story of the metamorphosis. The blossoms of some of the Rock-Roses would certainly suggest that they had an origin such as we have been considering, and we therefore welcome the red varieties as graceful additions to our list.[*]

The Iris.

Owing to the confusion already mentioned in connection with epithets applied to flowers in the Greek and other languages, the Iris has come to be regarded by some as a competitor for a place among the flowers of Adonis. It is not unworthy of such a place, and since the ancients often spoke of purple blood, the purple Iris might well have been stained therewith; but, like the Larkspur, its claim is weak.

One more allusion, and our list must close. In the Lateran Museum at Rome is an ancient sarcophagus on which is a representation in sculpture relief of the parting of Adonis from Aphrodite. Adonis is shown reclining in the lap of the goddess and holding in his hand the branch of a tree. What does this represent? Some think the Willow, others the Mistleto. I would put in a plea for

The Almond.

The idea has been put forth that we have here a suggestion that by means of the magic bough the departing god may yet again be brought back from the shades of the departed to a land of life and love. But an Almond tree is said to have sprung from the blood of Agdestis, and since (as already seen) this god and Adonis are frequently confused with each other, and the Almond blossoms are red, we think this a much more appropriate tree to supply the branch which Adonis holds.

Our group of plants forms a pleasing array. I picture our Garden of Adonis in the springtide or early summer, when the Anemone, Argemone and Adonis-flower or Pheasant's Eye are in bloom and the Almond tree flourishes, or the Rock-rose, Mallow, Flax, Iris, Larkspur, Violet and Rose are flowering and giving forth their fragrance, and regret that I cannot have such a parterre, crowned with a statue of the god, really under my own direction. There must be many, however, who can carry out the plan, and to these it will be a joy to make further suggestions in the papers which are to follow. *Hilderic Friend.*

A NEW FORAGE PLANT.

Variations in the more important farm plants were observed and recorded more than a century ago, and during the last century great improvement was brought about in these crops by the selection and development of the best types. Such a high level has now been reached that further advance, either as a result of selection or hybridisation, is very difficult to achieve.

Less attention has been bestowed on the forage crops which, owing to the trend towards animal husbandry in these islands promise to overtake the cereal crops in importance.

At the present time there is no Leguminous forage crop which will take the place of Lucerne, as grown on a large scale in many countries, but several native species just fall short of providing the necessary qualities. Such a plant is Sweet Clover. This was apparently cultivated in England as early as the sixteenth century, but was displaced by Red Clover on the introduction to cultivation of that useful crop.

The crop to which this note refers belongs to this family of plants and is probably a sport of the common commercial Sweet Clover (Melilotus alba). Botanically, it most closely resembles Melilotus arvensis which, however, in its wild state, is a small plant, often reaching no more than a few inches in height, and is normally an annual or biennial. The new plant differs considerably in appearance and character from the various types of Sweet Clover met with in this country. It is a perennial in the sense that Lucerne and Sainfoin are perennials, but has no power to renew its root-system as is the case of the grasses and White Clover; persistence depends on the survival of the original root and its duration is influenced by the treatment the plant receives.

The plant grows to a height of four feet and does not commence flowering until over two feet high; it is very bulky and carries a high percentage of leaf, flourishes equally well on all classes of cultivated soils and the forage is free from the objectionable woodiness of the common Sweet Clovers. It makes a leafy, green, aromatic hay, and, dried or green, is readily eaten by all classes of farm stock, even in the later stages of its growth. Sheep are particularly fond of it. The agricultural qualities of the plant approximate closely to those of Lucerne, and interest in the crop lies in the possibility of its ability to replace Lucerne or Red Clover where those crops do not give satisfactory results. and of extending the area under Leguminous grazing and hay. Over a large area Red Clover cannot be grown with success more frequently on the same land than once in eight years, and the available substitutes fall far below it in yield and value, while the soils in which Lucerne will thrive are very limited in extent, and in spite of its superior feeding value the area under this crop is shrinking.

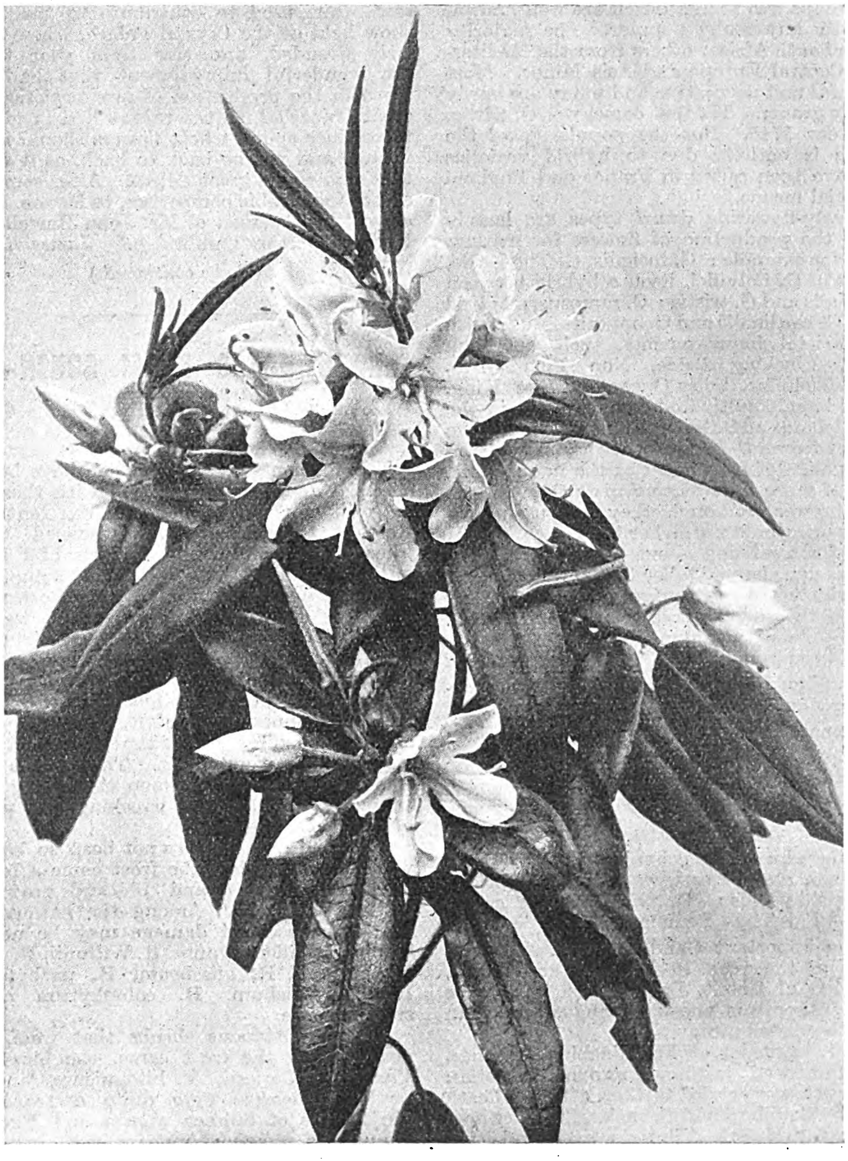


FIG. 168.—RHODODENDRON LEPTOTHRIUM.

(see p. 352.)

White Clover, the best of pasture plants, gives but a small yield; therefore, a grazing plant of the same general composition combined with productiveness gives promise of usefulness. There can be little doubt that British agriculture would at the present time benefit from an extension of the use of Leguminous crops, and with the development of stock-farming forage crops of this class are sure to be needed to a greater extent than at present. Corn has become unprofitable on many farms and the persistent fall in the price of animal products compel the farmer to seek the most economical methods of providing for the needs of his live-stock.

Leguminous forage, when cut early and well harvested, has a composition mid-way between that of the rough fodder of the farm and the concentrates, and so can be made to bring about a considerable saving in the cost of feeding. At the present time comparatively little pure Legume hay is grown in this country, Vetches and Peas being the only crops which can be relied on under all soil conditions; although these crops are well suited to the purpose, the annual seeding and cultivations add considerably to the cost of this crop as compared with such crops as Lucerne and Sainfoin which need seeding only at intervals of several years. *Jas. C. Brown, late Vice-Principal Harper Adams Agricultural College.*

---

[*] Since this was written I have seen the large red Cistus extending for miles in the Western Riviera. *H. F.*

THE GLADIOLUS.

I do not propose to give a lengthy or scientific account of this flower, but merely to bring together in so small a compass as possible any particulars and incidents in the story of the Gladiolus that I can remember which may be of interest to the many rather than to the few.

Full descriptive details of the genus and its numerous species will be found in several good works on horticulture; for instance, the Illustrated *Dictionary of Gardening*, edited by the late Mr. George Nicholson, and Mr. A. J. Macself's *Gladioli*.

There are some fifty to sixty species. Of these perhaps less than a dozen are well known, and hardly any really popular. The majority hail from South Africa, others from the Mediterranean, Central Europe and Asia Minor. Most are graceful and decorative and many are hardy and easily grown. The first comer was G. tristis, in the year 1745. But the popularity of the Gladiolus is entirely due to hybrid varieties which have been raised in France and England by artificial means.

The early-flowering dwarf types are largely used for the production of flowers for market, and are, for example: G. insignis, G. The Bride, a variety of G. Colvillei, itself a hybrid between G. cardinalis and G. tristis; G. ramosus, a hybrid between G. cardinalis and G. oppositiflorus; with many varietal improvements, such as Peach Blossom, Blushing Bride, Non Plus Ultra, Queen Wilhelmina, Fairy Queen and Fire King. They are largely cultivated commercially in the Channel Islands and also in England under glass by market growers. These form a group by themselves, spoken of frequently as the nanus class, and are of more interest to florists than to the private grower, although they are useful for conservatories and warm borders.

What I am writing about, however, are the later-flowering, larger, taller kinds, now at long last so widely grown in private gardens. They belong to the following sections, given in the order of date of introduction. But there has recently been much blending of the sections.

1.—Gandavensis: G. psittacinus × G. cardinalis or more probably G. oppositiflorus.

2.—Lemoinei or Spotted Butterfly or hybrids: Gandavensis × G. purpureo auratus.

3.—Nanceianus: G. Saundersi × Lemoinei.

4.—Kelwayi: Gandavensis × Nanceianus.

5.—Childsi: Gandavensis × G. Saundersii.

6.—Langprim: G. primulinus × Kelwayi, Gandavensis and other large-flowered hybrids; Primulinus hybrids: G. primulinus × small-flowered kinds, *e.g.*, Lemoinei.

1.—The important Gandavensis class originated before the year 1841 with Van Houtte, nurseryman of Ghent, Belgium, or it may be that the raiser was one Bedinghaus, and Van Houtte the distributor.

Souchet, gardener at Fontainebleau, France, soon commenced raising improved varieties, and his work was carried further, after his death in 1872, by Souillard and Brunelet, his successors in business. Messrs. Vilmorin and Andrieux, of Paris, distributed the Fontainebleau seedlings and still do so. James Kelway, of Langport, first imported into England some of these hybrids so long ago certainly as 1847, and exhibited them and his own seedling varieties in London and elsewhere from about the year 1852 to the time of his death in 1899.

In 1860, Standish, a nurseryman of Bagshot, exhibited in London a variety called Mrs. Blount and another called Herr Rosenberg. Each received a Certificate of Commendation. In the year 1866, James Kelway was awarded no fewer than twenty-seven certificates for new varieties of his raising, and was cataloguing hundreds of varieties. Between this date and 1893 about 170 new varieties were certificated by the Royal Horticultural Society, the principal exhibitors and raisers during that period being Messrs. Kelway and Son. Other exhibitors were Samuel Dobree, an amateur of Wellington, Somerset; Messrs. Campbell, nurserymen of Gourock, Scotland; Messrs. Galloway, nurserymen in Scotland; and Mr. John Burrell, nurseryman of Cambridge. A well-known connoisseur and writer, the Rev. H. D'Ombrain, wrote in 1901:—

"The history of the flower during that period has certainly been a remarkable one, and unlike that of any other flower, for its production has been confined to very few growers. In France, one may say positively no other florist has ventured to enter into competition with the Fontainebleau firm. Some years ago there were a few who ventured to do so, but they did not produce any flowers of any great merit. . . . .

As far as our English growers are concerned the production of new varieties has been almost restricted to one or two growers. For a very great many years, Messrs. Kelway and Son, of Langport, Somerset, held the field, and for some time used to contribute to the autumn show held at the Crystal Palace, where I regularly attended, and saw from year to year the wonderful improvement that had taken place in the production of new varieties. One great object which the raisers had in view was to produce spikes whose flowers should face the visitor, and not be back to back, as it was felt that this was a great defect. After some years a very formidable competitor, to Messrs. Kelway arose in the person of Mr. John Burrell, Howe House Nurseries, Cambridge." *James Kelway.*

(*To be continued.*)

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

The torments of Tantalus can have been but a trivial annoyance compared with those lying in wait for the Rhododendron enthusiast. Here, in the north-west, we escaped the frost whereof we heard in other parts of the realm in April, and were chortling complacently over our immunity, for *on supporte tranquillement les malheurs d'autrui;* but we found ourselves up against it in the last night of the month and the first night of May, when the mercury registered 8° of frost. Blue clouds of R. Augustinii; rosy flush of R. Schlippenbachii, sulphur tresses of R. campylocarpum—all were blistered into dingy ashes. But that was not the worst of it. The serious matter was the ruin wrought upon the young growth of many fine species, wrecking the prospect of next year's display.

Still, the mischief has not been so bad as it was last year, when the frost came a fortnight later—on May 15 and 16—and growth was further advanced. Among the newer species that have escaped damage may be noted R. Souliei, R. adenogynum, R. Wiltonii, R. Prattii, R. Fargesii, R. glischrum, R. pachytrichum, R. habrotrichum, R. calophytum and R. sutchuenense.

Among deciduous shrubs that were in full flower when the frost came, the blossoms of Viburnum Carlesii, V. bitchuiense and Staphylea holocarpa were quite destroyed, but the flowers of Spiraea arguta and Exochorda grandiflora remained untarnished.

The merits of Exorchorda—the Pearl Bush—seem not to be generally recognised by amateurs. One may visit a score of good gardens without coming across a single specimen; yet it may claim very high rank among flowering shrubs. There are two or three species; I think that E. grandiflora is the one we grow here. It is perfectly hardy, flowers abundantly every year, is easily raised from seeds which it ripens in quantity, and, growing ten or twelve feet high, is a truly beautiful object in early May. Nearly related to the Spiraeas, the flowers of the Pearl Bush are much larger than those of any Spiraea. E. grandiflora is a Chinese species (*Bot. Mag.*, t. 4,795).

Herbaceous borders are apt to be much disfigured by the use of white, wooden labels, and I am grateful to Messrs. W. Wood and Son, of Taplow, for supplying me with wooden labels painted green. They retain a pencilled inscription much better than those painted white, remaining quite legible for two or three seasons, or until such time as it may be desirable to replace them with permanent metal labels. Another useful device consists of the patent pot crocks made by Mr. C. E. West, of Higham Hill, E. 17. They are convex discs of perforated zinc, and serve as a clean and convenient substitute for the broken potherds usually used for drainage when potting plants. Practically indestructible, they may be used again when the plants are shifted from the pots.

Probably your correspondent, *S. W. D.*, has not made acquaintance with the Chinese species of Pokeberry, Phytolacca clavigera (*Bot. Mag.*, t. 8,978), else he would not have recommended the very inferior North American species, P. decandra (page 318). In stature, habit and general appearance, the two species are very much alike, save that the flowers of P. clavigera consist of a bright, rose-coloured perianth set round the prominent green ovaries, which, in ripening, are crimson at first, afterwards turning to the same glistening black that distinguishes those of P. decandra. Seeds were first sent home by Forrest from Yunnan in 1913, and the plant has proved quite hardy in this country, although the young growth is apt to be cut by untimely frost in May. *Herbert Maxwell, Monreith.*

A REVISION OF VIOLAS.

(*Continued from page 249*).

V. caespitosa—The only Viola of this name is V. caespitosa, Lange, and it is probably a faulty description of this which Farrer had in front of him. It belongs to the Kitaibelianae section of Tricolor Violas, not very condensed, however, as it grows as much as eight inches high. It is very branching and forms tufts that are as much as a foot across. The yellow flowers are intermediate in size between V. tricolor and V. arvensis. It is a species, not of the East, but of Portugal (as on the Serra da Estrella), and parts of Spain. It ascends sometimes to alpine heights.

V. calcarata is the occasion for a page of prose-poetry by Farrer, in which, however, it is impossible to put one's finger on an exaggeration. Those who have seen either the wide circles of this Viola, multi-coloured and luminous, on the way up to the Little Mont Cenis Pass in early July, or the extraordinary expanse of blueness carried so far as the eye can reach on the Western side of the Mont Joli Pass (like the expanses of Heather on the Portsmouth Road as one goes out to Wisley in August), will not attempt to disparage Farrer's enthusiasm. It is a desolating thought that only the common blue-purple form can be obtained from English nurseries, and that generally at an inordinate price; the white form may be come by in one or two Continental nurseries; but that is all. I have searched lists in vain for the brilliant yellow forms, from palest citron to oldest gold; and as for the flowers of "citron and bronze and violet," an Award of Merit surely awaits the introducer thereof, though the highest desire is to reproduce those multi-coloured circles of the Mont Cenis. Farrer hardly does justice to V. Zoysii. This is rated as a distinct species, and will be dealt with in its proper alphabetical order. V. elongata is a name which I have, so far, failed to trace. V. Eugeniae has been taken out of the Calcaratae into the Altaicae. V. corsica is a synonym of V. Bertolonii, the Corsican species dealt with previously. V. aetnensis belongs, as already stated, to the heterophylla group, and V. nebrodensis is now recognised as an altaica species.

V. calycina.—The relative position of this plant has been thoroughly cleared up by Becker. Except in stating that it has yellow flowers, that it comes from Pisidia (southern Asia Minor), and that the calyx lobes are broad and blunt, Farrer's description puts the reader on the wrong trail, probably because he put over-much confidence in the work of Boissier, to whose V. olympica he related it. For the unravelling of this confusion, I must refer readers to my article on Viola gracilis in *The Gardeners' Chronicle* of September 18, last year; here it may be briefly stated that V. olympica, Boissier, is synonymous with V. gracilis, Sibthorpe and Smith (the true V. gracilis), and that V. calycina is a sub-species of V. gracilis. Being a form of V. gracilis, V. calycina is not confined to Pisidia, but is found throughout the area of the main species, as in northern Asia Minor in the Kastamuni district and in Pontus. These strange names, by the way, are to be found in any small atlas.

V. canadensis.—There is nothing to add to the description of this, except that it is the outside of the petals that is tinged with violet. V. scopulorum is now classed as a distinct species, and is half the size of V. canadensis in all its parts. V. Rydbergii should be known under the more general name of V. rugulosa, Greene, the former name having been given to the Rocky Mountains plant, which is only distinguishable from the type by its broader leaves. All forms are a particularly attractive stemmed Violet. *E. Enever Todd, Lt.-Col.*

(*To be continued.*)

FRUIT GROWING IN THE WESTERN CAPE PROVINCE.

(*Concluded from page* 340.)

Apples.

My experience in South Africa confirms my opinion that the best Apples cannot be grown in a temperature which will ripen the vine. The fruit may be perfect to look at but flavour is lacking and texture hard and woody.

I was nearly leaving the country without a good word for the South African Apple, when, just at the last moment, I was presented with a case of Jonathan, which were grown high up at Ceres. They were first-class, but this country is cold in winter and not a real vine country. Marvellous Apples are grown at Elgin, about thirty miles from Cape Town, to the East, on an extraordinarily shaly soil. I tried Cox's Orange Pippin from this part in various stages of ripeness but they do not approach the English-grown fruits for flavour and excellence, but for appearance and size they are remarkable.

A very curious feature of all South African Apples is their variation in size and shape from the English normal. They are apt to grow much broader and flatter and the eye is very deeply sunken; in fact, Cox's Orange Pippin closely resembles our Court Pendû Plat, while Reinette du Canada would almost pass in England for a Bramley's Seedling.

One of the principal varieties grown is, curiously enough, the old Rymer or Caldwell, which is known as Versfeld's Warner's King. The true Warner's King is also grown; its appearance is very different from fruit grown in this country, but the habit of tree and leaf shows that it is the same. Other Apples much grown are Ohinemuri (Monro's Favourite), an Australian variety; Wemmershoeck, an old Dutch sort; Rome Beauty, Reinette du Canada, Delicious, Spitzenberg, White Winter Pearmain, Cleopatra, and a few trees of Ribston Pippin, Cox's Orange Pippin, King of Tompkin's County and Blue Pearmain.

At the Experiment Station at Stellenbosch there were a good many English varieties; Allington Pippin crops enormously, but ripens too quickly in the heat, as do Ribston Pippin and Cox's Orange Pippin.

Other Fruits.

With regard to other fruits, no great quantities are seen of Figs, though they do quite well and their cultivation might be worth encouraging for the export trade.

Almonds are not yet much grown, nor have Olives been seriously tried. There seems a possibility for both of these fruits in the future.

Pests and Diseases.

The most striking thing to the visitor from Europe is the general cleanliness of the trees and thanks to the dry spring and summer, fungous pests are of no account, the spotted and scabbed Apples only too familiar in this country, being very rarely seen, and the leaves of the trees uneaten by caterpillars lead one to envious thoughts. However, all these advantages are wiped out by the terrible ravages of the codlin moth, which was introduced about thirty years ago and whose presence must cause a loss of thousands of pounds annually to fruit growers from damaged fruits and the frequent arsenical sprayings which are necessary. The moth produces three or four broods each summer, and spraying has to be continued for late Pears until shortly before picking, so many as seven separate sprayings being sometimes required. The cost of these measures must be enormous, and however "free trade" one's feelings may be, one sympathises with the stringent restrictions which the Union now imposes on all horticultural importations. If the preventive spraying is curtailed so many as fifty per cent of the Pears may be attacked by the Codlin Moth and so rendered unsuitable for export, and not content with Apples and Pears, the moth also attacks Plums, Peaches and Apricots. Great care is taken by most growers to trap them with bands of sacking and by scraping the trees in winter to prevent them wintering over on the tree, but even all these precautions do not prevent the severe attacks above-mentioned.

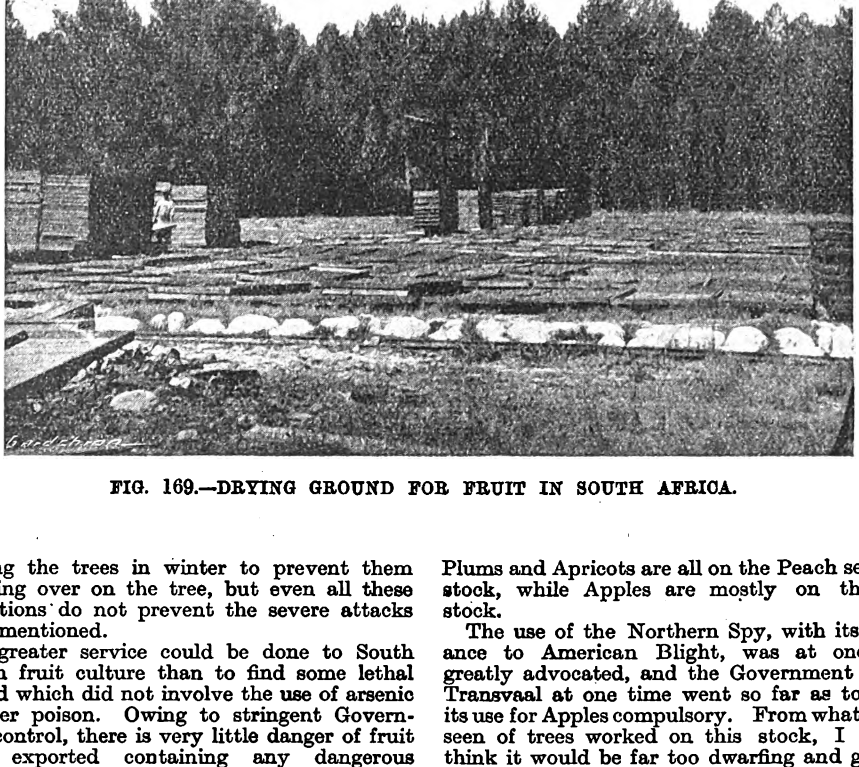


FIG. 169.—DRYING GROUND FOR FRUIT IN SOUTH AFRICA.

No greater service could be done to South African fruit culture than to find some lethal method which did not involve the use of arsenic or other poison. Owing to stringent Government control, there is very little danger of fruit being exported containing any dangerous proportion of arsenic, as each fruit is wiped over before packing, and should arsenic be found in any dangerous quantity, export is not permitted. South Africans point out that the fruit for home consumption is not tested in this way, and that there has been no serious mortality among fruit-eaters—quite a good point to make. The Government, however, rightly prefers to run no risk, and maintains its stringent inspection of all exported fruit.

American Blight is, and has been, troublesome, but is now being effectively dealt with by Aphelinus mali.

Mealy Bug, our greenhouse pest, thrives in the open and requires constant attention in the warmer districts, while a pest new to me called the American Bug, a large edition of American Blight, was troublesome here and there.

I noticed a certain amount of Silver Leaf in Peaches, but the general opinion of growers seemed to be that it was not of importance, but remembering that this opinion was also shared by many in this country some years ago, I think the matter should be closely watched.

There seems a marked absence of leaf-eating caterpillars, such as the Winter Moth and Tortrix. Should any by accident arrive in the country, I think they would have but little chance of surviving, so well-sprayed are the trees. In view, however, of the great number of Oaks in the south-western Cape Province, the Tortrix might be of considerable trouble there if they should obtain entry.

Stocks.

The dominant factor of all fruit-growing is the question of water supply. This fact is often masked from us in northern Europe, as we can generally count on sufficient for our needs. In South Africa it is hopeless to use any shallow-rooted stock, such as the Quince for Pears, or the Paradise for Apples, and seedling stocks with their deep, tap-roots, are absolutely necessary. The Pears are, therefore, grown on the seedling Pear; the Peaches, Japanese Plums and Apricots are all on the Peach seedling stock, while Apples are mostly on the free stock.

The use of the Northern Spy, with its resistance to American Blight, was at one time greatly advocated, and the Government of the Transvaal at one time went so far as to make its use for Apples compulsory. From what I have seen of trees worked on this stock, I should think it would be far too dwarfing and give up in dry years. The anchorage also is very bad and a number of trees are blown over by prevalent winds. I imagine that in ten years' time very few trees will be planted on this stock, and the Government will, if Governments can ever admit mistakes, repeal their hastily passed legislation.

In the Hex River Valley I saw an acreage of Pears on the so-called Japanese stock, probably Pyrus ussuriensis, which were being grubbed out as being unsuitable, which confirms my own trials with this stock in England.

Clean Cultivation and Packing.

It is from California in the main that South African fruit-growers have learned their business, and, on the whole, they have proved apt pupils. On most farms operations are carried out in the most efficient manner, and many would be a model to British growers, so far as cleanliness is concerned. If one may venture to suggest any improvement, it is in the selection of varieties. Many of our best quality fruits do not seem to have been tried, especially among Peaches, and it seems quite probable that an improvement in this direction might be realised.

With regard to packing, cold storage and transit, the evidence is before us in the excellent condition of the fruit as it arrives in our markets, and on this side we must admit we have much to learn from them.

PROSPECTS OF EXTENSION.

As to the possibility of extension, opinions, of course, differ, some of a pessimistic turn of mind consider the limit of production has been reached; others, however, think that the industry is but in its early stages of development. Experiments are being made with new markets, such as South America, and they justify the hope that the countries where fruit is sold may be extended.

A great deal of the possible fruit-growing area in South Africa is, of course, ruled out by the great distance from port, rail charges being too great, but even near the Cape there is still plenty of land suitable, and not too far from the railway. Where an English colony is settled, unplanted land may fetch £100 or so an acre, but in unsettled districts good land may be bought for £10 an acre, a certain social value entering in.

For the young man just starting fruit-growing, I think there is a chance, provided he has capital and is willing to work up from below as many young South Africans and Englishmen are now doing. Perhaps the most interesting feature is the desire of most young men born on the land to continue the life of their fathers rather than go to the town; a fact of hopeful augury for the future of South Africa. *Edward A. Bunyard.*

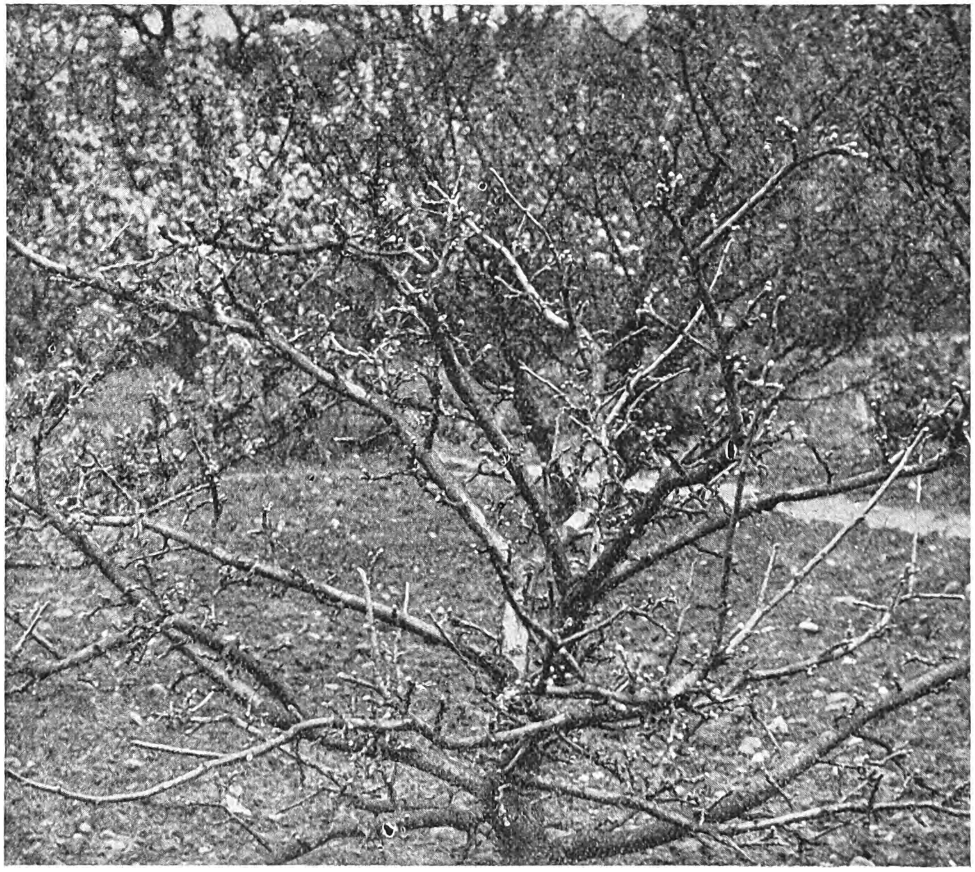


FIG. 170.—APPLE CRAWLEY BEAUTY; A LATE-FLOWERING VARIETY.

FRUIT GARDEN.

LATE-FLOWERING APPLES.

In districts where late frosts are prevalent it is advisable to grow a certain number of late-flowering Apples. Besides having a better chance of escaping late spring frosts, they are usually, to some extent, more free from the attacks of insect pests.

In a large collection of Apples it is remarkable to see the difference in the flowering periods between the earliest and latest to bloom; for example, in 1925, Astrachan Red opened its first flowers on April 21, whereas Crawley Beauty did not commence to flower until May 25 (Fig. 170).

It is not uncommon to see some varieties, such as River's Early Peach, in full flower (Fig. 171), and at the same time others with their buds almost dormant, as in the case of Crawley Beauty.

The following is a list, with brief descriptions, of varieties of Apples which flower very late.

Crawley Beauty is probably one of the very latest varieties of Apple to bloom, often being in flower in June. Of fairly recent introduction it is a good grower and crops freely; it is a useful culinary variety.

Court Pendû Plat is a very old, late, dessert variety, the fruit being distinctly flat. It makes a compact tree and is a prolific bearer. It has been called the "Wise Apple," on account of its late flowering.

Mother (American) is one of the best flavoured, mid-season, dessert varieties. Its one defect is its moderate fertility.

Royal Jubilee is a valuable mid-season cooking variety.

Edward VII is a variety of vigorous growth. This valuable, late, cooking Apple was introduced about twenty years ago and is claimed to be a cross between Blenheim Pippin and Golden Noble. The large, yellow fruit is frequently slightly flushed with brownish red, the flesh being exceptionally firm. When better known this variety will probably be more extensively grown for its fine keeping qualities. *J. Wilson, Wisley.*

STRAWBERRIES.

There appears to be some evidence that there is an increasing difficulty in keeping up the vigour of Strawberries growing in the Home Counties. During the autumn of 1923, Mr. W. H. Johns wrote at some length regarding the Red Plant Disease. While the eel-worm under notice was considered microscopic, it may be noted there is one of a much larger and thread-like type which attacks the plant.

Mr. Johns stated that where first-class cultivation is carried out there is but little to complain of, but many will be disinclined to agree with this statement, for where every attention has been given the plants rapid deterioration has gone on, and particularly on cold, heavy soils. The foliage becomes brown and withered-looking.

It would be interesting to know if any readers of this note have carried out any experiments with soil fumigants in relation to this trouble.

The introduction of new stock and planting on fresh ground are not apparently a guarantee against it. *A. J. Hartless, King's Walden Bury Gardens, Hitchin.*

INDUCING DORMANT BUDS TO BREAK.

Any well-placed buds on fruit trees which appear likely to remain dormant should be made to break by practising what is termed notching. Make an incision just above the dormant bud that is required to break and form a permanent branch. The incision should be deep enough to penetrate the wood. I have repeatedly practised notching with every success on old, horizontally-trained trees, where a new tier of branches was required, notwithstanding the buds have been practically invisible. When making the incision above the buds on the larger trees I often use a saw for the purpose, as the cut does not heal over so quickly as one made with the knife. The first year after the operation, the bud sometimes only plumps up, but the following year quite strong growths are produced. *H. M.*

FRUIT REGISTER.

APPLE RIVERS' EARLY PEACH.

This variety, which the illustration reproduced in Fig. 171 shows in flower, is of the Irish Peach type, but ripens a little earlier, and is in season about the middle of August. It has another distinction in that it does not bear its fruits at the ends of the branches.

It was raised by Messrs. Rivers and Son, but is not cultivated extensively for, like most early Apples, the quality is only poor; Bunyard, in his *Handbook of Fruits*, states that the flesh, whilst being sweet and aromatic, is apt to be a little dry. The tree is very fertile and makes a very pretty pyramid.

The fruits are flat-conical, coloured very pale creamy-yellow, with sometimes a faint flush. As stated by Mr. Wilson in his note on "Late-flowering Apples," Rivers' Early Peach is one of the first varieties to blossom, and whilst these precocious flowerers are apt to be ruined by frost in some seasons, they may escape injury when frosts occur very late owing to the fruits being already formed.

APPLE WYKEN PIPPIN.

This finely-flavoured Apple deserves to be more generally planted than is the case at present, for at Christmas, when the variety is usually at its best, the fruits are a most welcome addition to the dessert table and they will often remain in good condition until March.

The fruits are of medium size, flat-round, even in outline, and yellow when thoroughly ripe. The flesh is crisp and the flavour more than ordinarily good. The tree is a compact grower, fertile, and a regular cropper; it makes an excellent standard for orchard planting and is a success trained in bush form.

This fine old Apple was discovered at Wyken, near Coventry, nearly 150 years ago.

PEAR BEURRÉ BOSC.

This is an excellent Pear for a warm situation, such as a south or west wall. It is in season from October to November. The fruits are of medium to large size, long, pyriform, yellow-almost completely covered with cinnamon russet, so that the general appearance is a uniform brown colour.

The flesh is melting, very juicy and aromatic, and for flavour alone, Beurré Bosc compares favourably with most Pears.

It is a good variety for maritime districts and for chalky soils.

It was introduced to cultivation by Van Mons, and is sometimes called Calebasse Bosc; in Gloucestershire we have invariably gathered a fair crop of fine, well-flavoured fruits from cordon trees growing against a south wall. *Ralph E. Arnold.*

THE CELERY FLY.

(Acidia heraclei.)

The larvae of the Celery fly, or as it is sometimes called, the Celery-leaf Miner, often becomes a serious pest on Celery and allied plants towards the end of the summer or in early autumn. At those times control measures are difficult, and even if successful much damage is done to the crop before the pest is eradicated. It would appear that if control measures were adopted earlier in the season the damage to the crop might be reduced.

A. heraclei passes the winter in the pupal stage in the soil, near to the host plant. Sometimes a few specimens pupate in the old foliage, but this is not general. Towards the end of April, the adult flies begin to emerge, and in favourable weather during the first week of May, if Celery and Parsnip foliage be carefully watched, the female flies may be detected running about over the plants selecting positions in which to deposit their eggs. The emergence of the perfect insects from the pupal stage covers rather a long period. Early specimens may be found towards the end of April and late specimens can be taken towards the end of May. This protracted egg-laying period has led some observers into the error of stating that there are: "several broods or generations in the course of the summer." I have never been able to detect more than two; one extending from late spring to early summer, and the second extending from August to October, or even later.

Under most garden conditions it is the second generation of the Celery Fly which does the greatest amount of damage, and it is interesting to consider why this should be. At first one is tempted to think that something happens each winter which so reduces the numbers of the resting puparium stage that few survive to emerge the following spring and that, owing to this, the first generation of the pest is small. Under the favourable summer conditions every fly from the first generation comes through, and hence the second generation is always a heavy one. This is an easy way of explaining the situation, but it is not true.

The true explanation appears to me to be that the breeding of the main part of the first generation does not take place in cultivated plants at all, but in a wild host plant, namely, Hogweed, Heracleum Sphondylium, Linn. In my district this plant is always heavily attacked with a leaf miner, which I have repeatedly bred out, and the flies have been identified by various authorities as being A. heraclei. As this wild host plant is common throughout Britain, it would appear reasonable to suppose that what the Celery fly does in my district it does in most of Britain. I am confident that under my conditions the main part of the first generation breeds in the wild Hogweed, and that the second generation comes to the Celery.

Another curious thing is that in spite of continual search, I have failed to find the second generation of the pest on Hogweed. The second generation seems to breed entirely in Celery and Parsnips.

In undertaking control measures for checking attacks of Celery fly, it must be remembered that during the winter and very early spring the pest is safely situated in the soil on the sites of last year's Parsnip and Celery crops. On the appearance of the flies in the spring their egg-laying activities are divided, because it takes place, to a limited extent on Parsnips and Celery; but the greatest number are laid in the wild host plant, Hogweed; cultivated Heracleums and probably many other umbelliferous plants are also attacked.

On the appearance of the second generation, the egg-laying activities are restricted mainly to cultivated Parsnips and Celery, and it is this generation that causes the gardener the greatest amount of trouble.

As it is always an advantage to apply control measures to an insect pest when the latter is all in one stage and in one position, it would seem that this is only possible at some period during the winter. The disadvantage of this is that the puparium stage is not easy to kill, but in spite of this, the effort is worth while, because then, and then only, are all the Celery flies in one stage and in one position. The advantages of winter treatment are obvious, *e.g.*, the main methods of control in the past have been: (1) Treating the host plants with some substance which is distasteful to the flies so that they go elsewhere to lay their eggs; (2) treating the foliage of the host plants with a nicotine wash, so that the larvae are killed within the leaf. If success is to be gained either of the above control measures have to be repeated over a fairly long period, because when used once, only part of the generation is dealt with.

The best treatment I have used up to the present has been to apply crude naphthalene at the rate of two ounces per square yard, at the end of March. I have found that when naphthalene is applied at that period it kills better than when applied earlier. Why this should be so I do not know, unless it be that the pest is more susceptible to naphthalene as it approaches maturity.

The practice of sowing a trap crop, for the purpose of collecting certain insect pests scattered over a wide area into definite positions so that expensive control measures can be economically applied, is steadily gaining ground. The practice has attracted a good deal of attention in America, and is being tried in this country, especially with regard to wireworms. To use the trap method for the control of Celery fly is easy, because the only two plants that appear to be attacked by the second generation are Parsnips and Celery, and if the sites of these crops were systematically treated each year at the time stated in the last paragraph, it could have no other effect than to reduce the pest considerably.

A. heraclei is often badly attacked by several parasitic insects; the common parasite with me is Adelura Apii, Curtis, but I do not find that this parasite is most common in any one generation. *Somerset.*

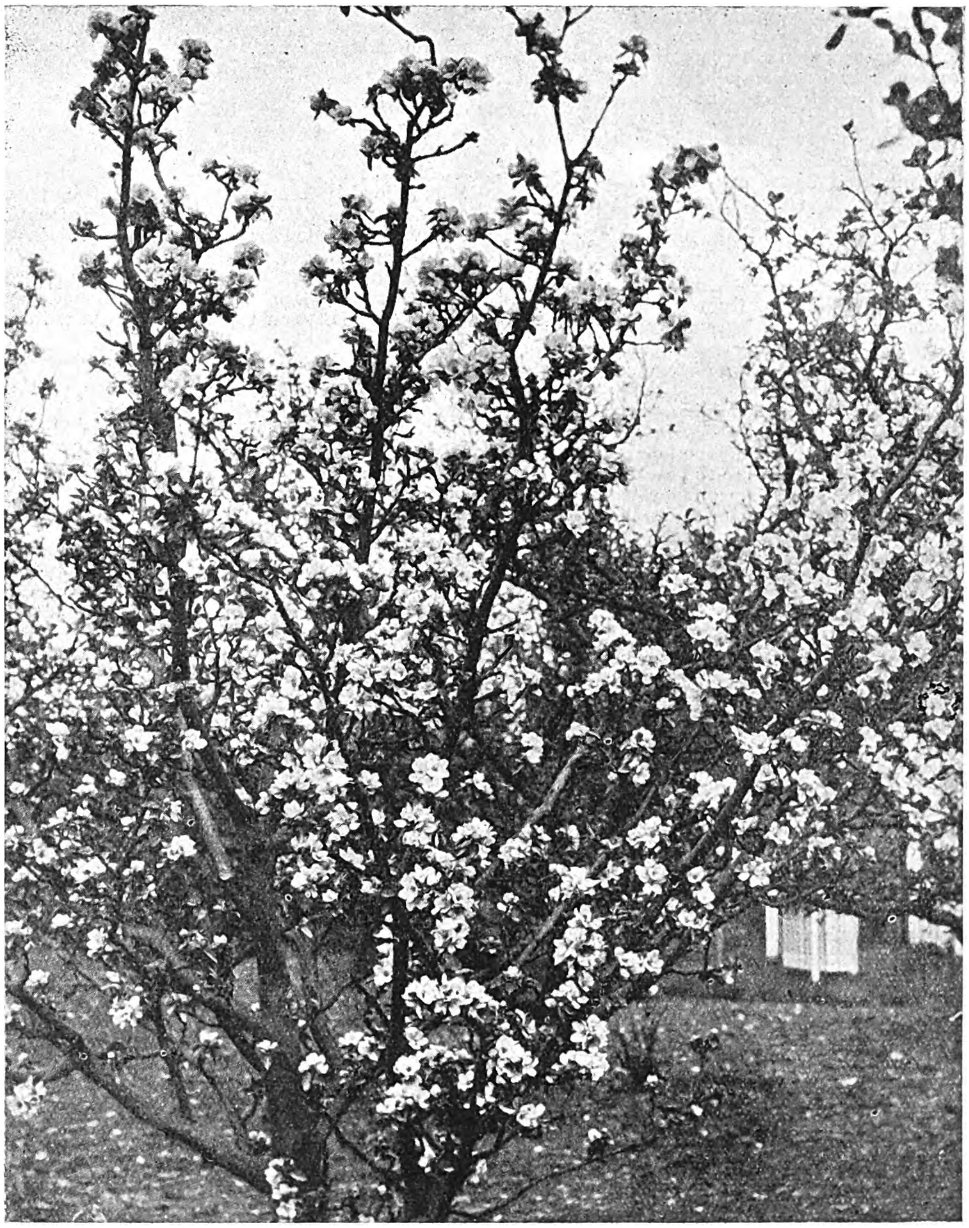


FIG. 171.—APPLE RIVER'S EARLY PEACH; AN EARLY-FLOWERING VARIETY.

VEGETABLE GARDEN.

FORCING SEAKALE.

MY method of forcing Seakale last winter may be of interest; it involves less trouble than that described by Mr. H. H. Cook on page 289.

My plan in former years has been to force the crowns in a Mushroom house, but fuel being scarce, I could not afford to employ heat there last winter. I made some long boxes, seven inches deep and just wide enough to stand on the gratings over the hot-water pipes, where these came through from the boiler.

The crowns were put closely together in the boxes with just enough room to shake some finely sifted soil down between. I made tops to the boxes, with an overlapping rim and two slats across the top, which allowed another seven inches for growth, and covered all over with sacks to exclude the light. When the produce from the first box was cut the latter was re-filled with more crowns, which can be stored beforehand in sifted ashes out-of-doors, at the foot of a wall or in any convenient place and not necessarily indoors.

Mr. Cook advises the use of a hot-bed with a frame on top. I am afraid the hot-bed would require remaking each time the frame was refilled; the warmth from such a bed is not very lasting in mid-winter unless it is a very large one, in which case the grower would have too much produce at one time for a private garden.

The boxes are stood outside, with the crowns exposed to frost, until they are required. I have just finished cutting the heads in the last one, which did not require to be taken into heat, but was well covered up outside with a waterproof sheet over all to exclude the light. In planting the thongs, I reduce the shoots to one. If more shoots were left, as suggested by Mr. Cook, it would mean unnecessary labour in reducing them to single crowns later. *Grigor Roy.*

RUNNER BEANS.

SEEDS of this indispensable vegetable should be sown in the early weeks of May, and where possible, it is far the best to sow and raise them under glass. Procure boxes about four inches deep and fifteen inches or so square; place a few crocks in the bottom, covering these with half decayed leaves or manure to facilitate good drainage. Prepare a compost of two parts loam, one part leaf-soil, of Oak or Beech leaves for preference, and one part old Mushroom-bed manure, with a liberal dash of road or river sand to render the texture porous. Pass all these materials through a half-inch sieve.

Fill the boxes with the compost and press the seeds in edgeways, about three inches apart. Make the soil fairly firm and add sufficient fine compost to cover the seeds about an inch. Place the boxes in a vinery or Peach house or, failing these, a heated pit, and well water the soil in them. Cover each box with paper to prevent the soil drying out. The seeds will germinate quickly and, so soon as all are up, remove them to a cold frame so that they may grow sturdily. Select ground for this crop that has been trenched or dug deeply, and choose an open, sunny situation. If trenched ground is not available a trench may be made about two feet wide and the same in depth, well breaking up the sub-soil, and mixing with it garden refuse or other material that will tend to keep it open. Place one foot of the fine top-soil in the bottom and mix it with decayed farmyard manure, then add the remainder of the soil. When the trench is filled, allow the soil to settle before putting out the plants. Dust the surface soil liberally with soot and wood-ash, and a few days before planting, fork these materials lightly in the ground, and make the latter firm again before planting.

Runner Beans require adequate supports, and these should be placed in position before planting. Place two stout poles at each end of the trench, about a foot or fifteen inches apart, and others at intervals along the trench, if it is a long one, then fasten fairly stout wire from end to end, about six feet or so from the ground. Whether tall Pea sticks or poles are used, these should be tied securely to the wires with fine tar-twine, and placed about a foot apart. When staking is completed, rake the surface finely, and all will be ready for planting. Harden the plants by removing the frame lights during the daytime. About the end of May or early in June is soon enough to set out the plants, and even then the grower should have thin tiffany or other suitable material ready at hand for covering them if frost occurs. Remove each plant separately from the box with a trowel and place one at the base of each pole; nothing is gained by crowding the rows, rather the reverse.

In sowing Runner Beans outdoors it is advisable to sow fairly thickly and thin the seedlings rigorously, leaving only the strongest and healthiest plants. The stakes should always be placed in position so soon as possible as they will afford protection to the plants from frost, and the seedlings will not be so likely to be damaged at the roots in the operation. When all the Beans have been planted, make the ground tidy around them with a fine rake, and if the weather is dry water them with a rosed can the following morning, so that the plants are dry by nightfall. This is all the attention that will be needed for a week or two until danger of late frost is over.

It is not advisable to give the roots an excess of water at this early stage of growth, rather keep the ground between them well stirred with the Dutch hoe.

Although the Runner Bean is a climbing plant, it is well to tie the leading growths to the supports with a piece of broad raffia.

For ordinary household use the plants may be allowed to grow at will, but to obtain pods for exhibition, not more than two or three growths should be retained on each plant, and the Beans themselves thinned to two or three at each cluster.

When the plants are growing freely they should be mulched with strawy litter to prevent evaporation of the soil moisture; this is much better than overwatering, which is often a cause of the young Beans dropping. If the roots get down into a cold, stiff subsoil this will also cause the embryo pods to drop. The Beans should be picked so soon as they are ready.

There are several good varieties of the scarlet-flowered type, and also some that have white flowers, and both are very ornamental as well as useful.

During hot, dry weather, Runner Beans are much benefited by frequent syringings with rain water. When watering the roots it should be done thoroughly, and frequent applications of diluted manure water will help to keep the plants growing freely and produce fine crops of high-class pods. *R. W. Thatcher, Carlton Park Gardens, Market Harborough.*

CHINESE MUSTARD.

MR. SAUNDERS (*Gard. Chron.*, April 16, 1927, p. 271) identifies Chinese Mustard as Brassica nigra, syn. Sinapis nigra. Vilmorin-Andrieux (*Les Plantes Potagères*, 4th Ed., 1925, and 3rd Ed., 1904) gives it as Brassica (seu Sinapis) juncea. In my earlier days of cultivating this useful vegetable, I sent specimens to Kew whence, under date of July 16, 1920, was reported: "The Chinese Mustard is almost certainly Brassica rugosa, Prain. You will find a learned and very interesting account of the various Mustards in *Bull.* No. 4, in Agric. series No. 3. Dept. of Land Records and Agric., Bengal, 1898. B. rugosa makes quite a Cabbage growth in its early stages, whilst B. juncea is rather a weedy, straggling type of plant."

Further, Vilmorin alludes to a large-leaved variety of Brassica or Sinapis nigra as *Moutarde noir d'Alsace*; can this be the plant to which Mr. Saunders makes reference?

Of the Turnip-rooted varieties, the first I had from M. de Noter had leaves and habit much like the normal stock, *i.e.*, much like a Pé Tsai, but it gave a poor yield and seemed less worthy than the ordinary Turnip. Later, he wrote that this was a wrong strain, and sent another sort with laciniate leaves (*vide* Vilmorin), the foliage being very deeply-cut. However, this, too, failed to give any good return; the roots were rather hard and rank, so I determined to stop the further growing of this strain.

Last autumn both Chinese Mustard and Pé Tsai were severely attacked by the gall weevil, at the same time they were very dwarfed in growth, so that the whole crop was sheared off for a single dish and the remains of the plants burnt, that is with the exception of a few which were sent to Harpenden, whence it was reported that it was unusual for the gall beetle to cause interference with growth—that is, in the more usual Brassicas. As all the plants were affected (many with six or eight galls) and all were dwarfed, there was no comparative control, except by comparison with the familiar growth of former years. I incline to the belief that the sappy, soft growth of these plants might be far more affected than is the case with the woody stem of the Brussels Sprouts or Broccolis, and was, indeed, the cause of the dwarfing. Next July, when sowing this year's crop, I propose to incorporate "Para dichlor benzene" ("Pesta") in the seed-bed and also when planting out. *H. E. Durham.*

HOME CORRESPONDENCE.

Tropaeolum tuberosum.—During the last three years, I have endeavoured to grow this plant, trying it in heavy soil, also in a light, very hot and dry positions against a house with less than a dozen flowers resulting, and those very late in the season. Can there be two varieties of this plant? During the 'seventies and early 'eighties, I remember it growing over a summer house in South Fife, and against a house wall near Edinburgh. In both places it grew luxuriantly and flowered very freely over quite a long period, making a very effective display. *P. M. T., Hereford.*

High Price for a Cherry Orchard.—In the interest of historical accuracy, may I correct your statement on page 332. The record price given for this orchard at Teynham included the trees and land, as well as the fruit. The sales of the fruit are usually held early in June. Profitable as Cherry-growing is, I do not think it has ever approached the sum of £450 per acre! *Edward A. Bunyard.*

PUBLIC PARKS AND GARDENS.

A SUGGESTION is made by the Newcastle-upon-Tyne Society to preserve an unbroken belt of parks, moor and pathway around Newcastle, and the scheme will shortly be submitted to the City Council. The sylvan belt will be drawn in the form of a curve from Scotswood, Denton Dene, round the Town Moor to Heaton, Ouseburn Vale. The Society suggests that in Ouseburn Vale a stretch of land now neglected should be saved from further damage and made a public park; that the semi-rural character of the road linking Jesmond Dene with the Town Moor should be maintained; that Denton Dene, a wooded dell, should be rescued from the builders and made a public park for Elswick, Scotswood, and Lemington; and that the roads already planned to link Scotswood and Denton Dene with the Town Moor should be adjusted so as to form a smooth-curved parkway to the north-west corner of the Town Moor, and that eventually a new road should be constructed along the northern edge of the moor.

BOOKHAM Parish Council has decided to purchase land for the extension of the recreation ground, and to raise a loan of £1,000 to defray the cost and provide for its development.

THE Middlesex County Council has received sanction from the Ministry of Health to borrow £2,550 as a contribution towards the cost of the acquisition by the Twickenham Town Council of a portion of Orleans House estate, known as River Meadow, for a public open space.

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held on Friday, April 22, the members of Committee present were Mr. J. B. Adamson (in the chair), Mr. R. Ashworth, Mr. A. Burns, Mr. A. Coningsby, Mr. J. Cypher, Mr. J. Evans, Mr. A. Keeling, Mr. D. McLeod and Mr. H. Arthur (Secretary).

Mr. B. Collins and Mr. A. Greenfield were invited to sit with the Committee.

First Class Certificate.

Cymbidium Pauwelsii aureum var. Mrs. Astley Bell.—Flowers deep yellow. From Hy. Astley Bell, Esq.

Awards of Merit.

Odontoglossum St. George var. Rubens, Odm. Mirum Towneley Grove var.; Odm. Corncrake; Miltonia Bleuana var. Distinction, and Lycaste brevispatha.—From J. B. Adamson, Esq.

Odontoglossum Margarita, Llewelyn's var.; Odontioda Latona var. G. V. Llewelyn; Brasso-Cattleya Jupiter var. Rex, and B.-C. Queen Alexandra, Llewelyn's var.—From G. V. Llewelyn. Esq.

Brasso-Cattleya Bianca, B.-C. Digbyano Warneri, B.-C. Maronet (*C. Mendelii* × *B.-C. Maronie*) *; and Odontoglossum crispum, Vestey's variety.*—From the Hon. G. E. Vestey.

Cypripedium Sullum (*Christopher, G. D. Nicholson* × *Mirum*)*;* and *Miltonia Henry Astley Bell.* From Hy. Astley Bell, Esq.

Brasso-Cattleya Apollo, Hey House var. and *Brasso-Laelio-Cattleya Rumania var. gigantea.*—From J. McCartney, Esq.

Miltonia Lena (*vexillaria superba* × *Charlesworthii*). From Messrs. Charlesworth and Co.

Awards of Appreciation—First Class.

Miltonia Princess Mary (Hyeana × Bleuana). From G. V. Llewelyn, Esq.

Cultural Certificates.

Cultural Certificates were awarded to Mr. A. Burns for Lycaste Hughii and Sophronitis grandiflora; to Mr. J. Howes, for Sophro-Cattleya Anzac var. Vesuvius and Miltonia Bleuana; to Mr. B. Collins, for Lycaste Skinneri; and to Mr. C. F. Potts, for Maxillaria Sanderiana.

Groups.

J. B. Adamson Esq., Blackpool (gr. Mr. J. Howes), staged a group to which a Gold Medal was awarded. It contained Odontoglossums in variety including O. St. George var. Rubens, O. Mirum, Towneley Grove var. O. Corncrake, O. Phillipsianum aureum, and O. aspersum; Odontioda Theresa, and O. Gladys superba; Laelio-Cattleya G. S. Ball, and L.-C. highburiensis; Sophro-Cattleya Anzac var. Vesuvius (awarded a Silver-Gilt Medal), Miltonia Bleueana var. Distinction, M. grandiflorum and others. J. McCartney, Esq., Bolton (gr. Mr. C. F. Potts), was awarded a Large Silver Medal for a group containing Cattleya Mossiae, Brasso-Laelio-Cattleya Rumania, Brasso-Cattleya Apollo, Brassavola Digbyanum, Cypripedium bellatulum and Maxillaria Sanderiana.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), staged a group to which a Silver Medal was awarded. The principal plants were Cattleya speciosissima Stanleyi; Brasso-Cattleya Digbyano-Mossiae; Brasso-Laelio-Cattleya Philomela; Odontioda Vuylstekeae; Odontoglossum Pescatorei; Lycaste Hughii, L. lasioglossa, and Sophronitis grandiflora.

G. V. Llewelyn, Esq., Southport, was also awarded a Silver Medal for a group containing Miltonia Sanderiana, M. St. Andre; Cypripedium Lilian Greenwood, C. Mirabilis, Renanthera Imschootiana and others.

The Hon. G. E. Vestey, Birkdale (gr. Mr. B. Collins), was also awarded a Silver Medal for a group. Odontoglossum crispum, Vestey's var., Odontioda Cooksoniae, O. gattonense, O. Lawrenceanum, Brasso-Cattleya Bianca, B.-C.-Digbyana-Warneri, Cattleya Mary Sander, Lycaste Skinneri and Oncidium sarcodes were all shown well. Hy. Astley Bell, Esq., Garstang (gr. Mr. W. Bryon), staged Cymbidium Pauwelsii aureum var. Mrs. Astley Bell, Odontoglossum Princess Bibesco var. Gloriette, Odontioda rubellum, Cypripedium Sullum and Miltonia Hy. Astley Bell. Capt. W. Horridge, Bury (gr. Mr. A. Coningsby), staged well-flowered plants of Dendrobium devonianum.

R. Ashworth, Esq., Newchurch (gr. Mr. H. Hough), staged Odontoglossum Cervantesii var. Decorum.

Messrs. Cypher and Sons, Cheltenham, staged a group to which a Silver Medal was awarded.

Messrs. Keeling and Sons, Bradford, showed Odontioda Sanderiana, O. Wm. Thompson and O. Vuylstekeae.

BRITISH CARNATION.

The following new Carnations have been registered by the British Carnation Society:—

Evelyn Townley, a bright cerise variety registered by R. Chetwynd-Stapylton, Esq., Headlands, Great Berkhamsted.

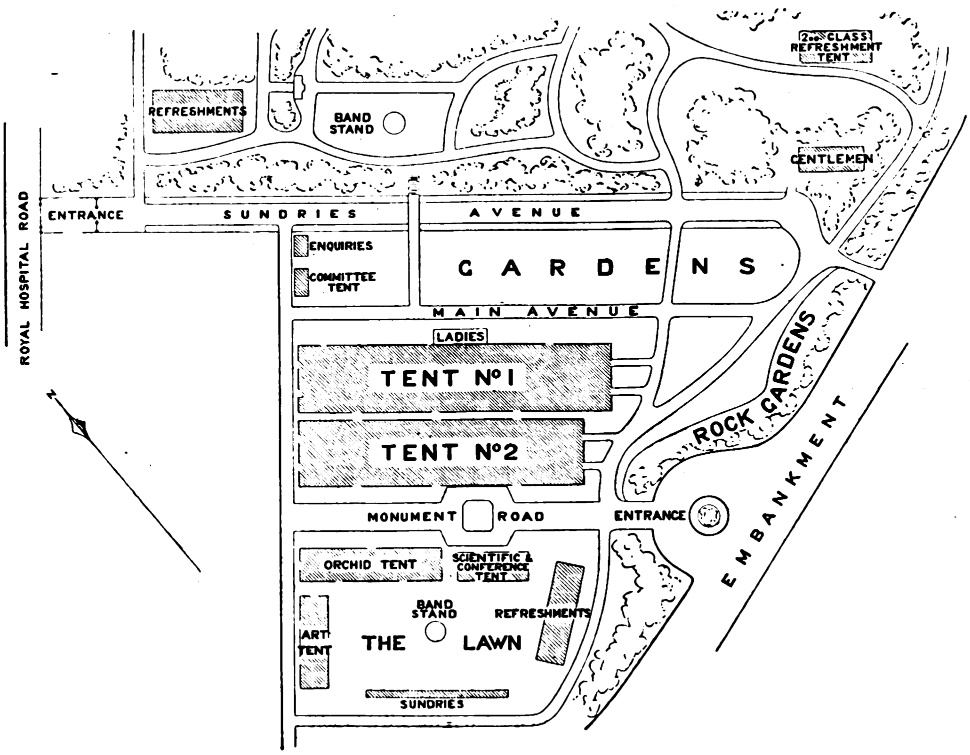


FIG. 172.—PLAN OF THE CHELSEA EXHIBITION, 1927.

(see p. 348.)

Mrs. J. L. Mills, a rosy-salmon-pink variety, registered by Mr. J. L. Mills, Tenson Court, Peterborough.

Clarice Page, scarlet, registered by Mr. W. H. Page, Tangley Nurseries, Hampton.

Wivelsfield Blush, white, overlaid pink; Fragrant Lady, white, overlaid with claret; Cottlea Pink, mauve-pink; Edward Allwood Improved, scarlet; Wivelsfield Purple, purple; Clayton Cerise, cerise, and Clayton Pink, salmon-pink; all registered by Messrs. Allwood Bros., Wivelsfield Nurseries, Haywards Heath.

Gem, salmon pink; registered by E. Martin Smith, Esq., Codicote Lodge, Welwyn.

Magnum, light salmon-pink, and Phoenix, red; both registered by H. T. Mason, Esq., Rectory Farm, Hampton Hill.

Mrs. A. Swann, apricot ground, flushed and flaxed with crimson; registered by Mr. A. Swann, Colwood Gardens, Warninglid, Haywards Heath.

Ileriskit, salmon-pink; registered by Mr. Walter Hemus, Redcotts, Hampton.

Sunny, orange, slightly marked pink; Spes, scarlet cerise; and Babs, light rose-pink; all registered by Messrs. C. Engelmann, Ltd., Saffron Walden, Essex.

NATIONAL TULIP.

At the exhibition of the National Tulip Society held under the auspices of the R.H.S. in connection with the fortnightly meeting, on May 10 and 11 last, the Tulips made a very brave show.

After the blazing sunshine and almost tropical heat of the week-end the flowers were ushered into the cool Hall with the wind off the ice.

Young blooms, of which there were plenty, did not expand, whilst the conditions favoured the wide open flowers, the fully grown examples.

In the competition for the principal award for twelve dissimilar Tulips—the blue riband of the Society—a most exacting class to satisfy, five stands were staged. The competition was keen, and the first prize was awarded to Mr. C. W. Needham, Hale, with flowers grown in Surrey. As the Tulips were displayed on their respective boards (so put up to reveal to the judges their faults), the visitor was reminded of a tray of rare old china cups and saucers, set out for afternoon tea on some rare occasion.

Mr. Needham's examples of Sam Barlow and Mabel were well-flamed, and Masterpiece and Lady Constance Grosvenor, well feathered.

Mr. W. Peters, Cambridge, had an attractive stand of well matched flowers, including Lucy Luard—the best-feathered bloom—and a specimen of the rarely seen Julia Farnese. Sir Daniel Hall, Merton, had a rather unequal stand, but it contained six blooms of surpassing excellence, and the best flamed flower in A. M. Gregor.

Messrs. Barr and Sons had blooms of fine colour and growth; a notable variety was Wedding Coat, an almost blaze feather on a white ground.

Mr. C. J. Fox, Birmingham, had beautifully marked examples, nearly in the bud state, not suited to the unkind temperature. His flower of Stockport was a fine one.

Sir Daniel Hall won the first prizes in the class for six and for three flamed Tulips respectively.

Mr. Peters won the first prize for three feathered flowers.

In the class for pairs,—the Samuel Barlow prize—Mr. Needham won with Talisman, feathered, and Sam Barlow, flamed.

In the Breeder classes, Sir Daniel Hall was pre-eminent as well with his exhibits as with his seedlings. Annie McGregor, shown by

Mr. Peters, one of the best rose Breeders raised by Martin seventy years ago, a brilliant scarlet on white, was adjudged to be the premier "breeder." As a rose breeder marking the greatest advance in seedling culture the recently raised Miss Willmott, a seedling of Sir D. Hall and exhibited by Messrs. Barr and Sons, was conspicuous.

Feathered flowers were seen in excellent form. Mr. Peters had a fine Universe, a purple feather of bluish tinge.

Perhaps the most striking bloom was a specimen of Britomart, a new seedling raised and shown by Sir D. Hall, a noble flower, smooth and level on the top, with purple marking, almost blue, on a shining white, satiny ground.

Taking Miss Willmott on the one hand and Britomart on the other, we have here the best results of the florist in his efforts to separate the red from the blue, as seen in the old-time purple of the bybloemen class.

ROYAL HORTICULTURAL.

The following awards have been made to the undermentioned vegetables by the Royal Horticultural Society, after trial at Wisley.

Autumn-sown Spinach.

Awards of Merit.

Schietvrees (round-seeded), sent by Messrs. Nunhem; *Prickly or Winter*, sent by Messrs. Barr and Sons; *Thick-leaved Round*, sent by Messrs. Atlee Burpee and Co.

Highly Commended.

Dwarf Thick-leaved Round, sent by Messrs. Barr and Sons; Broad Flanders (round-seeded) sent by Messrs. Barr and Sons; these two are much alike; Prickly or Winter, sent by Messrs. Atlee Burpee and Co.

Commended.

Broad-leaved Improved (prickly), sent by Messrs. Cooper, Taber and Co.

Savoys.

Awards of Merit.

Belleville, sent by Messrs. Watkins and Simpson; *Favourite*, sent by Messrs. J. Harrison and Co.; *New Year*, sent by Mr. H. J. Speed; *Late Drumhead*, sent by Mr. Cullen; *Ormskirk Late Green*, sent by Mr. Clucas.

Highly Commended.

Perfection, sent by Messrs. Finney; Yellow King, sent by Messrs. Zwaan and de Wiljes; Late Market, sent by Messrs. Finney.

Commended.

Dark Green Curled of Late Ormskirk type, sent by Messrs. Dobbie and Co.; Cartercone, sent by Messrs. J. Carter and Co.

GUILDFORD AND DISTRICT GARDENERS'.

The members of this Association held their first outing of the season on Saturday, April 30, when, favoured with a bright and sunny spring day, about one hundred of them paid a visit to Wancote, by kind permission of P. Lyle, Esq.

The visitors were received and conducted through the grounds by Mr. G. T. Watson, the gardener.

Wancote is situated on the southern slope of the well-known Hog's Back, and from the front of the mansion the view to the left is across Compton, famous for Watts Gallery and Memorial, over the Charterhouse at Godalming on to the Pitch Hill range of the North Downs. Immediately facing is Blackdown, famous for Aldworth, the home of Tennyson, while to the right is Hindhead and its foothills, with richly timbered, undulating country between.

The extensive flower-beds near the house are on platforms cut into the hillside, two or three terraces rising one above the other.

The members enjoyed a drive for six miles along the Hog's Back to Farnham, where tea was partaken; the journey home by Frensham ponds concluded a very enjoyable day.

IRIS.

A General Meeting of the Iris Society, preceded by a dinner, was held at the Grosvenor Hotel, London, on Wednesday, May 4, when upwards of forty members and guests attended.

Mr. F. Kingdon Ward gave a short but very interesting account of his recent visit to China, illustrated by lantern slides. He described the conditions under which he found various Iris species, but said that few, if any, of them were likely to prove distinct from species with which growers are already acquainted. The districts he had traversed had been too wet for any but the moisture-loving species, and even of these he could relate no important finds.

After extending the thanks of the Society to Mr. Kingdon Ward for his entertaining lecture, the President, Mr. Geoffrey Pilkington, announced that the Committee had decided, subject to the approval of the meeting, to ask Mr. George Yeld to become the first English recipient of the "Foster Memorial Plaque." This is reserved "for special and personal award to anyone contributing to the advance of the genus."

The spontaneous enthusiasm with which this announcement was received was sufficient evidence of its popularity. In accepting this tribute to his life's work, Mr. Yeld spoke feelingly of his association with Sir Michael Foster, and of the epoch-making influence by him (Foster) on the development of Iris culture in Europe and America. Proud as he was of the honour the Society had conferred upon him, it could have come in no better form than in the excellent portrait in silver of the man upon whom he looked as a master, and of whom he was a humble disciple. "None of us would have done anything had not Sir Michael shown us the way."

Mr. Pilkington then sought the approval of the meeting for two further awards recommended by the Committee. The influence of Sir Michael he said, had been world-wide, and his name was honoured in America and France quite as much as in his own land. It was, therefore, hoped the meeting would approve the making of one award in America and another in France. The names suggested were Mr. J. C. Wister and M. S. Mottet. Mr. Wister is the President of the American Iris Society, through whom the English Society wished to pay a tribute to the excellent work done by the American organisation, and also to many individual workers in the United States, but above all, it was desired to recognise Mr. Wister's own indefatigable and enthusiastic work that had made him an outstanding personality amongst American Iris growers. With reference to Mons. Mottet, with whom many members of the Society were familiar, he needed only to point to his achievements in association with the firm to which he had been for so many years attached—Messrs. Vilmorin-Andrieux et Cie.—to justify any honour it was within the power of the Society to bestow. The meeting signified its unanimous approval.

After expressing the gratitude of the Society to Mrs. Phillip Runciman for the handsome Challenge Cup she had presented for competition at the forthcoming Iris Show, the President called upon Mr. R. W. Wallace to introduce the subject of awards of the Dykes Memorial Medal. With the easy eloquence for which he is so well-known, where the subject is one he has at heart, Mr. Wallace proceeded to draw a vivid and inspiring picture of the bonds that were being forged between England, France and America, by means of the Iris. Dykes' name was a household word amongst Iris lovers in all countries. He therefore proposed that a Dykes' Medal in silver-gilt should be offered each year in England, America and France for the purpose of which it was instituted, *i.e.*, "the best new Iris of the year not hitherto in commerce." He pointed out that the result of this would be that in a few years when these new Irises had been distributed, they would eventually come into competition with each other in all three countries, with the result that it would ultimately be possible to select not only the best of each country, but also the best Iris in the world. He looked forward to the day when it would be possible, say, ten years hence, of having twenty "Dykes Medal" Irises for adjudication, and the possibility of making a super award of the medal in gold to one of them.

The meeting having agreed, it was decided to offer one medal each year to the American Iris Society and the Société Nationale d'Horticulture de France, respectively.

After discussing various arrangements for the show to be held in the R.H.S. Hall, Vincent Square, on June 2, the meeting terminated.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

At the May meeting of this Society, held at the Royal Horticultural Society's Hall, Mr. Charles H. Curtis presided.

Four new members were elected and three members were allowed to withdraw from their deposit account sums amounting to £61 15s. 5d. The sum of £144 10s. 4d. was passed for payment to the nominees of two deceased members. The sick-pay for the month on the Ordinary side was £97 11s. 0d., and on the State section, £86 9s. 7d. Maternity benefits came to £2 10s. The sum of £44 11s. 6d. was made in grants for dental treatment to nine members, and thirteen other applications were considered.

ROYAL CALEDONIAN HORTICULTURAL.

The ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on May 3, Miss Burton, Vice-President, in the chair.

A paper was read by Mr. G. N. Smith, Newry, Ireland, on "The Grouping of Trees and Shrubs for Effect." In grouping, Mr. Smith said, much could be done by studious observation, nevertheless, excellent effects were frequently obtained without this, and he instanced a case of this sort where roots of the Plume Poppy (Bocconia cordata) had been accidentally left in the ground where Prunus Pissardi and Neillia opulifolia lutea had been grouped, and where a fine effect had been produced by the unexpected development of the Poppy. He gave many examples of suitable combinations, both of flower and foliage, as well as of arrangements for seasonal effects, as, for example, a group of double-flowered Cherries with a cloud of Spiraea arguta underneath, etc. He stressed the use of Bamboos for the purpose, but for these plants ideal surroundings were necessary. They were, however, the evergreens *par excellence* for massing in open woodland. Trees and shrubs with golden foliage required to be associated with something warm or sombre in colour, so as to act as a foil.

The only exhibit was of Tritonia Prince of Orange, from Mr. D. Armstrong, Drum Gardens, Edinburgh, for which he was awarded a Silver Medal.

Obituary.

William Hutchinson.—We regret to learn of the death of Mr. William Hutchinson, for many years gardener to Major Galbraith, at Terregles, and subsequently in the employment of Messrs. Learmont, Hunter and King, of Dumfries, and recently with Mr. Thompson, Ecclefechan Nurseries, Dumfries. Mr. Hutchinson, who was well-known in the north, was sixty years of age, and is survived by his widow and two sons.

Jakob Ochs.—The death is recorded, in the German gardening press, of a very well-known German landscape gardener—or, as Continental usage has it, garden architect—Jakob Ochs, of Hamburg. Born in 1870, he acquired experience of various kinds before founding his business, which he did in 1896, with very little capital, but unbounded energy and enthusiasm. Generous to his employees, he was unsparing of his own strength, and was always the first to begin work and the last to leave off. He died on March 18, of an affection of the liver.

Arthur Postle.—It is with regret we record the sudden death of Mr. Arthur Postle, from heart failure. Born in Norfolk, he became garden boy at Holywell Hall, Stamford, and afterwards gained experience in several other gardens in different parts of the country, eventually returning to take charge of the gardens where he commenced the business of life. He filled this position for thirty-eight years, and Col. Hood-Reynardson's gardens bore ample testimony to his skill and energy. A widow, three daughters and two sons mourn the loss of one who was held in high esteem by all who knew him.

ANSWERS TO CORRESPONDENTS.

Double Daffodil.—*E. M.* The double flower is a very handsome one, and we do not remember having seen anything quite like it, as the yellow and cream-coloured segments are so distinct. It is a variety well worth perpetuating.

Edible Cress.—*E. T.* (1) The plant you send is Barbarea verna, of Acherson, and is sometimes named B. praecox, of R. Brown. It is known in gardens as American Cress, and is edible, being obtained in the form of seeds from the seedsmen to furnish Cress for salads in winter. It is a European species, an escape from gardens in this country, and only an introduced plant in the United States. You can distinguish it from all other species in Britain by the long and few pods on a given length of stem, and by the short stalks to the pods, almost as thick as the pods themselves, as well as by the numerous narrow segments to the leaves of the stem. The plant is best grown as an annual to get the leaves the first year before it flowers. Sow the seeds thinly now. (2) The purple flower is Cardamine pratensis, or, if you care to be critical, call it C. p. palustris (Lady's Smock or Cuckoo Flower). It could not have come from Barbarea verna, being a common British plant that grows in damp places. It produces seeds freely, which the type of C. pratensis does not.

Figs Unhealthy.—*Correspondent.* We failed to find any disease present, either on the Fig leaves or fruit sent for inspection, and think either the border or cultural conditions are at fault, as the leaves are soft and thin in texture. Figs will fruit well in a very poor rooting medium, provided the trees are neither checked by drought nor swamped at the roots by cold, stagnant moisture. The latter condition appears to be your trouble judging from the appearance of the leaves. Elevate the border or excavate it to the depth of the drainage next autumn, and allow one square foot of border to every square yard of trellis. Mix the soil with burnt earth, broken bricks and old lime or plaster rubble. Figs enjoy plenty of heat and moisture, provided the drainage is efficient and the roots healthy, but in a season like the present it is easy to create a too cold, stagnant atmosphere which favours gross growth, and only by lifting and root-pruning the trees, using the materials mentioned in the soil, can this tendency be corrected.

Insects on Poplar Trees.—*H. L. D.* From what can be seen from the scrapings of bark received for examination, the Poplar trees are affected by a species of aphis. All that can be done is to spray the bark on several occasions, at intervals of a few days, with a paraffin wash.

Leather Jackets in a New Rockery.—*G. W. B. G.* The presence of leather jackets in the soil points to the use of turf by the makers, and this would be splendid rooting material when the grass has decayed thoroughly. It is unfortunate that the leather jackets are present, but they will develop into the perfect fly stage known as Daddy Longlegs in the summer, and not be likely to trouble you again, for the female Daddy Longlegs lays her eggs in grass.

Mealy Bug on Hippeastrums.—*H. N. G.* Nothing but persistent attacks upon the mealy bug will remove the pest from bulbs of Hippeastrum. All the rough and dead portions of the scales should be removed and the bulbs cleansed with a fairly strong insecticide applied by a moderately stiff brush As growth appears, the appearance of the pest must be watched for carefully, and any seen should be touched with a small brush dipped in methylated spirit. When the bulbs are entirely dormant more drastic measures may be taken to eliminate the trouble.

Muscat of Alexandria Vine Leaves Scorched.—*H. W.* The scorched appearance of the vine leaves cannot be traced to infection by disease organisms. It is, however, frequently associated with root trouble, and we suggest that you should make careful examination of the root system, because it is possible that the soil is either dry or deficient in plant foods. Dryness at the root can be corrected immediately by suitable applications of water, but, if the soil is poor, you will have to wait until the resting period, when a portion of the soil about the roots should be carefully removed and a good vine compost substituted.

Name of Fruit.—*W. H. C.* Apple Bedfordshire Foundling.

Names of Plants.—*L. S.* Corema album. *X. L.* 1, Lonicera tatarica; 2, Vaccinium corymbosum. *R. R.* Exochorda grandiflora. *H. B. W.* The plant is Tolmiea Menziesii, allied to Heuchera, Tiarella, etc. *G. K.* Fruiting stems of Equisetum arvense.

Rust on Berberis (Mahonia) Plants.—*G. S.* The Mahonia sprays are attacked by the Rust fungus, Puccinia mirabilissima, an American species which was first observed in Britain in 1922 (being recorded by Malcolm Wilson from near Edinburgh in *Transactions of the Botanical Society, Edinburgh*, XXVIII, p. 164). This fungus is not related to the Rose Rust, and no fear need be entertained of it affecting your Roses. In addition to the treatment already given to the Rose beds, it would be advisable to look over the Rose bushes carefully for orange-red patches of spores bursting through the back of last year's wood or covering the young buds, and remove these carefully. The orange-red patches of spores usually appear on certain varieties only, and develop from the middle of April to the end of May.

Sclerotia in Soil.—*A. G.* The black, seed-like bodies in the soil are the sclerotia of Rhizoctonia Solani. High temperatures, over-watering, excessive feeding and deep-planting favour the disease in certain greenhouse plants. Sterilization of infected soil by steaming or baking, or with a twenty per cent. solution of formaldehyde (one gallon of commercial forty per cent. pure formaldehyde in forty-nine gallons of water) has been recommended as efficacious in getting rid of this disease.

Silky Fibre from Tree.—*T. A. D.* In the absence of material suitable for correct identification, it would appear that the fibre received for determination is that of the Silk Cotton Tree (Eriodendron anfractuosum). This tree is found in Tropical Asia and Tropical Africa, and is cultivated elsewhere. The silky floss surrounding the seeds is usually regarded as unsuitable for spinning purposes, but it is used a good deal in the upholstery trade as a stuffing material under the name of "Kapok." It has the peculiarity of being very buoyant, and is used in certain kinds of life-saving apparatus. Further, the fibre does not mat together and form lumps as in the case of some stuffing materials. A good deal of the fibre used in commerce is collected in Java and India. If the seeds were sown in a warm greenhouse there should be no difficulty in getting them to germinate and form small trees, but it is unlikely that they would bear fruits.

Communications Received.—W. J. S., Thanks for 2/- for R.G.O.F. Box.—A. R. H.—J. C. A. C.—F. J.—A. R.—W. S.—A. G.—H. E.—P. C. G.—H. C.—n. G. and C.—M. J. W.—R. J. W.—T. V.—J. W. B.—W. A.—W. H.—J. G. W.—F. D.—C. D. D.—J. G. S.

NEW HORTICULTURAL INVENTIONS.

These particulars of New Patents, of interest to readers, have been selected from the Official Journal of Patents, and are published by special permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

9,543.—Fowler, C. H., and Bowler & Co. (Leeds), Ltd.—Ploughing engines, etc. April 7.

9,731.—Hoffman, A.—Manufactures of phosphatic fertilisers. April 8.

9,432.—King, W. C.—Solid-panel fencing. April 6.

9,318.—Linley, C. M.—Means for defining edges of garden paths, etc. April 5.

9,505.—Moreau, M. F.—Driving gear for mowing etc., machines. April 6.

Specifications Published.

268,508.—Mavor and Coulson, Ltd., and Munro, A. M.—Driving mechanism for haulage drums.

268,593.—Sack, R.—Lifting and lowering of agricultural implements connected to tractors.

268,607.—Lan, F. Y. P.—Insecticides.

268,070.—Lewis, J. A.—Potato-digging machines

261,346.—Grant, C. L. W.—Garden trowels and other garden tools.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2., at the uniform price of 1/- each.

Abstract Published.

Topping Beet, etc.

A simple machine for topping Beets and other roots has been designed by Mr. J. P. Humphreys, of 19, Preston, Wellington, Shropshire, under Patent No. 265,776. The apparatus is hand-worked, and one can deal with a surprising number of roots in a short while. The Beet, etc.. to be topped is placed in a recess in a block and is cut by a knife attached to a lever actuated through a pin and slot connection by a hand-lever, which, if necessary, can be worked off a treadle. A slot is formed in the block to receive the knife so that no accident can happen when unattended.

THE LATEST TRADE MARKS.

This list of Trade Marks, of interest to readers, has been selected from the Official Trade Marks Journal, and is published by permission of the Controller of H.M. Stationery Office.

KENBAR.

478,766.—Agricultural and horticultural machinery, and parts of such machinery.—John Barker and Company, Limited, 83, Kensington High Street, London, W.8. April 20.

ANCHOR.

475,435. — Evaporated Bananas. — Gillespie Brothers and Company, 82, Fenchurch Street, London, E.C.3. April 20.

ABDULAH.

477,252.—Fruits.—Isidore Nehama Benmayor, 6, Stanley Street, Liverpool. April 13.

SILVANUS.

474,253.—Fruits and nuts for food.—Murray, Milton and Co., 56, Newcomen Street, Borough, London, S.E. 1. April 13.

GARDENING APPOINTMENT.

Mr. R. J. Barnard, for six months gardener to Capt. and Mrs. Bache Hay, at Appletree House, Byfield, Northants, as gardener to the same lady and gentleman at Culworth House, near Banbury, Oxon. (Thanks for 1/- for R.G.O.F. Box.—Eds.).

MARKETS.

COVENT GARDEN, Tuesday, May 17th, 1927.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in the day.—Eds.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz. ...	10 0-12 0
—elegans ...	10 0-15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, doz.	12 0-18 0
—32's	24 0-30 0
—nidus ...	12 0-15 0
Boronia heterophylla, 48's, per doz. ...	36 0-48 0
Cacti, per tray —12's, 15's ...	5 0--7 0
Cinerarias, 48's, per doz. ...	12 0-15 0
Crotons, doz. ...	30 0-45 0
Cyrtomium ...	10 0-25 0
Erica Cavendishii, 48's, per doz.	36 0-42 0
—coccinea minor, 48's, per doz.	24 0-27 0
—persoluta, 48's, per doz. ...	24 0-30 0
—Wilmoreana, 48's, per doz.	27 0-30 0
Fuchsias, 48's, per doz. ...	15 0-18 0
Heliotropes, 48's, per doz. ...	15 0-18 0
Hydrangeas, pink, 48's, per doz.	24 0-36 0
—blue, 48's, per doz.	30 0-36 0
—white, 48 s, per doz.	24 0-30 0
—larger sizes, each ...	4 0--5 0

	s. d. s. d.
Marguerites, 48's, per doz. ...	21 0-24 0
Mignonette, 48's, per doz. ...	18 0-21 0
Nephrolepis in variety ...	12 0-18 0
—32's	21 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pelargoniums, 48's, per doz.	12 0-15 0
—Zonal, 48's, per doz. ...	9 0-10 0
—Ivy-leaf, 48's, per doz. ...	12 0 18 0
Pteris, in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small ...	4 0—5 0
—72's, per tray of 15's ...	2 6--3 0
Roses, Polyanthas, 48's, per doz.	18 0-24 0
—Rambler, large plants, each .	5 0-15 0
Spiraea, white, 48's, per doz.	21 0-40 0
—pink, 48's, per doz.	27 0-30 0
Stock, white, 48's, per doz. ...	12 0-15 0
—coloured, 48's, per doz. ...	10 0-12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	8 0--9 0
cuneatum, per doz. bun. ...	6 0--8 0
Anemone St. Brigid, per doz. bun. ...	2 6--3 0
Asparagus plumosus, per bun., long trails, 6's ...	2 0--2 6
med. sprays .	1 6--2 6
short ,, ...	0 9--1 3
—Sprengeri, bun. long sprays...	2 0--2 6
med. ,, ...	1 0--1 6
short ,, ...	0 6--1 9
Carnations, per doz. blooms .	2 0--3 0
Cornflower, blue, per doz. bun.	3 6—4 0
Croton leaves, per doz. ...	1 9—2 6
Ferns, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	4 0--8 0
Myrtle, green, per doz. bun.	1 6--2 0
Stock, double white, per doz. bun. ...	6 0-12 0
Gardenias, per doz. blooms .	2 6--4 0
Gladiolus, Blushing Bride, per doz. bun. ...	12 0-15 0
—Peach Blossom, per doz. bun.	12 0-15 0
— The Bride, per doz. bun.	18 0-21 0
Gypsophila, white, per doz. bun.	8 0-10 0
Heather, white, per doz. bun.	6 0--9 0
Hydrangea, white, per doz. bun.	36 0-42 0
—coloured, per doz. bun. ...	30 0-36 0
Iceland Poppies, per doz. bun.	2 6—3 0

	s. d. s. d.
Iris, Spanish, per doz. blooms—	
—blue ...	1 0--1 6
—yellow ...	1 6--2 0
—mauve ...	1 0--1 6
—white ...	1 6—2 0
Ixia, various, per doz. bun. ...	2 0--3 0
Lapagerias, per doz. blooms ...	4 0—5 0
Lilium longiflorum, long, per doz. ...	2 6—3 0
—short, doz. blooms ...	2 0--2 6
Lily-of-the-Valley, per doz. bun.	30 0-36 0
Marigolds, per doz. bun. ...	5 0—6 0
Narcissus, per doz. bunch—	
—Poeticus ...	2 6--3 0
—double white	5 0—6 0
Orchids, per doz.	
—Cattleyas ...	24 0-36 0
—Cypripediums	6 0--8 0
Pyrethrum, per doz. bun.—	
—double white	6 0-10 0
—single red ...	5 0—6 0
—single pink ...	4 0—5 0
Richardias (Arums), per doz. blooms .	3 0—4 0
—yellow, per doz. blooms .	— 30 0
Roses, per doz. blooms—	
—Columbia ...	3 0--4 0
—Richmond ...	2 6--4 0
—Madame Butterfly ...	2 6--3 6
—Golden Ophelia	3 0—4 0
—Mrs. Aaron Ward ...	1 6—2 6
—Madame Abel Chatenay ...	2 0--3 0

Cut Flowers, etc.—continued.

	s. d. s. d.
Roses, per doz. blooms—	
—Hoosier Beauty	2 6--4 0
—Liberty ...	3 0—4 0
—Molly Sharman Crawford ...	2 0--3 0
—Premier ...	3 0—4 0
Smilax, per doz. trails ...	5 0--6 0
Statice sinuata, mauve, per doz. bun.... ...	3 0--4 0
Stephanotis, per 72 pips ...	3 0--3 6

	s. d. s. d.
Stock, per doz. bun.—	
—double white	6 0-12 0
—double mauve	12 0-18 0
—double pink	12 0-18 0
Sweet Peas, in variety ...	6 0-12 0
Tulips, per doz. single—	
— —yellow ...	9 0-12 0
— —scarlet ...	9 0-10 0
—Darwin, red	8 0-10 0
— — pink ...	8 0-10 0

Remarks.—Narcissus Poeticus is practically finished for the season. Double White Narcissus advanced in price from 3/- on Thursday to 5/- and 6/- before the market closed on Saturday, and prices remained firm to-day. Good prices are still maintained for double white Stock from home-growers. The first consignment of double white Pyrethrums from France has been received in good condition, and these flowers should meet with a good demand during the next few days, as white flowers of this type are scarce. Coloured varieties of Pyrethrums, both single and double, are now being received from home-growers. Sweet-scented Paeonies are already arriving from the South of France in good condition and should meet with a brisk demand; other blooms received from France are Gypsophila elegans, Statice sinuata, yellow Marguerites and white Pinks. All Roses have become dearer owing to the colder weather, and the shortage is likely to last for a few days. Prices have advanced according to the demand during the past week. Tulips are now almost finished, and prices are advancing for best blooms. Spanish Irises from home-growers are arriving in good condition. Of Gladioli, The Bride (white) is the best; more of the coloured varieties are being received from Guernsey. Cornflowers, Sweet Peas and the few Coreopsis on sale are much improved in quality.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, Australian—	
—Granny Smith	28 0-30 0
—Dunn's ...	14 0-16 0
—Cox's Orange Pippin ½-cases	18 0-23 0
—Jonathan ...	13 0-15 0
—King David .	14 0-15 0
—Ribston Pippin	13 0-14 6
—Cleo ...	15 0 17 0
—Others ...	12 6-13 0
Apples, New Zealand—	
—Cleo ...	18 0-20 0
—Delicious ...	15 0-16 0
—Alfreston ...	13 0-14 6
—Dunn's ...	15 0-16 0
—Jonathan ...	16 0-17 0
Apricots, Spanish, per crate ...	10 0-12 0
Bananas ...	16 0-24 0
Cherries, French, per crate ...	7 0-10 0
Figs, per doz,...	6 0-12 0
Grape Fruit— per case	
—Blue Goose...	32 6-40 0
—Jamaica ...	32 6-35 0
Grapes, English	
—Hambro, per lb	3 6--6 0
Grapes, South African, per case	
—Waltham Cross	8 0-12 0
—Rosaki ...	8 0-12 0
—Barbarossa .	8 0-10 0
—Raison Blanc	8 0-10 0
Grapes, Australian—	
—Ohanez, per ½-bushel ...	18 0-20 0
— — per 10 lb. boxes ...	8 0—9 0
— Black Malaga	18 0-20 0

	s. d. s. d.
Lemons, Messina Boxes ...	10 0-18 0
—Naples, per case	20 0-26 0
Melons, each ...	5 0--8 0
Canteloup, each	4 0-10 0
Oranges, per case—	
—Jaffa	20 0-22 0
—Californian Navel ...	— 30 0
—Denia ...	18 0-30 0
—Murcia ...	20 0-40 0
Peaches, per doz.	15 0-30 0
Pears, South African, per box—	
—Keiffer ...	5 0—8 0
—Winter Nelis	7 0—8 0
Pears, New Zealand—	
—Josephine de Malines ...	8 6-10 0
—Beurré d'Anjou	— 6 6
Pears, Australian—	
—Winter Nelis	7 0—9 0
—Beurré Bosc	6 0—8 0
—Josephine de Malines ...	7 6-10 0
Pines, case ...	21 0-40 0
Strawberries (forced)—	
—special, per lb	10 0-12 0
—best, per lb...	5 0—8 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus—	
—Cavaillon ...	0 7—0 9
—Lauris ...	1 0--1 6
—Worcester, extra special ...	4 0--6 0
—special ...	2 0—3 0
Beans, Forced—	
—Special ...	1 2--1 6
Beans, Madeira	3 6--4 6
Beets, per cwt.	5 0--6 0
Cabbage, per doz.	2 0--2 6
Carrots, per ½-bag ...	4 0--6 0
Cauliflowers—	
—English, per crate ...	4 0--6 0
Cucumbers, doz.	3 6--5 0
—Flats, 3, 3½, 4 doz.	12 0-14 0

	s. d. s. d.
Leeks, per doz.	2 0--2 6
Lettuce, round, per doz. ...	0 6--1 0
—long ...	1 0--6 0
Mint, forced, per doz. ...	1 0--2 0
Mushrooms	
—cups ...	2 0--2 6
—Broilers ...	1 6--1 9
Onions—	
Valencia ...	10 6-11 6
—Egyptian ...	— 12 0
Parsnips, per cwt. ...	4 6--5 6
Peas, per lb. ...	1 0—1 6
—French, per bag	5 0—6 0
Potatos—	
—King Edward— ton	180s. 200s.
—others, ton ...	120s. 150s.

Vegetables—continued.

	s. d. s. d.
Potatos, New—	
—Guernsey per cwt.	22 0-23 0
—Scilly per cwt.	— 20 0
—Azores ...	16 0-18 0
Radishes, per doz.	1 0—2 6
Rhubarb, natural	2 0--3 0

	s. d. s. d.
Savoys, per tally	8 0-12 0
Tomatos, English—	
—pink, ...	11 0-13 0
—pink and white	12 0-13 0
—white ...	— 10 0
—blue... ...	— 10 0
—Canary Island	16 0-30 0
Turnips, per cwt	4 0--5 0

Remarks.—The quantities of produce being handled are quite up to expectations for the time of year, for while the demand in some sections is not particularly good, there is a keen inquiry in most. Australasian Apples are an important feature just now and, on the whole, they are selling well. Grapes, from the same source, are also popular, as are those that are still coming from South Africa, whence Pears and Quinces are also arriving. English Gooseberries are in better supply and are meeting with a good demand. Tomatos show a considerable increase in quantities and are accordingly quoted cheaper. The Cucumber trade is at the moment slow. French Beans are a better trade, in spite of increasing supplies of English Asparagus. Hothouse Peas are more plentiful and cheaper. New Potatos from Jersey, St. Malo and Guernsey and Scilly are plentifula nd cheaper. Mushrooms have been in heavy supply lately, but their prices have kept up very well. Salads and all green vegetables are cheap.

GLASGOW.

Cut flowers continued to be cheap, and Tulips in particular were plentiful. William Saunders, Clara Butt, Wm. Copland and Bartigon varieties were worth from 3d. to 5d. per dozen, while prices of Daffodils ranged as follows: Emperor, 2/- to 2/6 per doz. bunches; Barrii conspicuus, 1/- to 1/3; Pheasant's Eye, 1/- to 2/6; recurvus, 1/3 to 2/-; and double white, 7d. to 10d. per bunch. Guernsey Irises made 3d. to 5d. (6's); English-grown Imperator, 1/- to 1/3 (12's); Rembrandt, 9d. to 1/-; and yellow, 1/- to 1/3. Carnations were slow to move at 1/9 to 2/6 per dozen. Lilium longiflorum (Harrissii) and Richardias (Arums) averaged 2/- to 2/6 per dozen. Pink Roses realised 2/- to 3/6 per dozen; small red Roses, 1/- to 2/6; white Roses, 1/6 to 2/6. Anemones were worth 2/- to 4/- per dozen bunches; special quality, 4/- to 6/-; Sweet Peas realised 1/- per bunch; Lily-of-the-Valley (outdoor), 3d. to 6d.; and Paeonies, 10d. to 1/3.

Bedding plants were in excessive supply. Coltness Gem Dahlia sold at 3/6 per dozen; Marguerites at 3/- per dozen; Violas at 1/6 per box; Lobelia, 1/- to 1/6 per box; Stocks, Asters, Antirrhinums and Alyssum, 1/- to 1/3 per box; and Calceolaria, 1/- per dozen.

Apart from an advance in the price of Oranges, the dealings in the fruit market were featureless. Prices for Valencia Oranges, 420's, varied from 26/- to 32/-; 300's, 20/- to 26/-; 360's, 16/- to 22/-; 240's and 200's, 18/- to 26/-. Grape Fruit was scarce and dear at 30/- to 40/- per case. Newtown Pippin Apples realised 14/6 to 17/- per case; Winesap Apples, 11/- to 14/-. Australian Pears (Beurré Bosc and Beurré Magnifique) realised 8/- to 10/- per tray; and Palermo Lemons, 300's, 15/-.

In the vegetable section, Scotch Tomatos commanded 2/6 per lb; Guernsey Tomatos, first grade, 1/5; second grade and rough, 1/- to 1/3; English Cucumbers, 4/6 to 6/- per dozen; Scotch Cucumbers, 7/- to 8/-; Lettuces, 1/9 to 2/- per dozen; Dutch Cauliflowers, 3/- to 7/-; Cabbages, 1/-; Asparagus, 9d. to 1/-; Maltese Potatos, (round), 16/- per cwt.; Kidney Potatos, 19/-; and Teneriffe Potatos, 16/- and 17/- per case.

TRADE NOTES.

One of the pleasantest things in business is when the demand for a high-class article becomes so great that by making it on a larger scale prices to customers can be reduced. The popularity of the greenhouses made by the firm of Boulton and Paul, Ltd., has been so great that they are enabled to announce reductions in their lean-to greenhouses from £15 to £14 5s. 0d., and in their span-roof greenhouses from £18 10s. 0d. to £17 0s. 0d.

Readers requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning *The Gardeners' Chronicle*.

SCHEDULES RECEIVED.

Royal Norfolk Agricultural Association.—Summer show, to be held at Fakenham on June 29 and 30.—Secretary, Mr. W. Kerridge, East Harling, Norwich.

The London and South of England Viola and Pansy Society.—The first annual show to be held at the Royal Horticultural Hall, Westminster, on Tuesday, July 19.—Secretary, Mr. John H. Little, Brent Tor, Brentwood Road, Romford, Essex.

Weymouth and District Chrysanthemum Society.—Fourteenth exhibition to be held in the Alexandra Hall, Weymouth, on Wednesday and Thursday, November 2 and 3.—Secretary, Mr. C. J. Bowers, 4, Wooperton Terrace, Weymouth.

THE
Gardeners' Chronicle

No. 2109.—*SATURDAY, MAY 28, 1927.*

CONTENTS.

Agricultural Workers, scholarships for ... 366
Agriculture in 1926 ... 365
Alkaloids, vegetable... 366
Alpine garden—
- Cheiranthus Harpur Crewe 369
- Mesembryanthemum uncinatum ... 369
- Primula Giraldiana 369

Austrian Horticultural Centenary 367
Bolting, problems of... 372
Carnations, prizes for an essay on... ... 365
Edinburgh Royal Botanic Garden Guild "Journal" ... 365
Flowers, old-fashioned fragrant 372
"Gardeners' Chronicle" seventy-five years ago 367
Glasnevin, notes from 371
Hardy flower border—
- Chrysanthemum uliginosum ... 369

Hydrangeas, British-raised 366
Indoor plants—
- Hydrangeas from seeds 367

Iris Society's Prize Fund 366
Obituary—
- Knowles, W. ... 385

Orchid notes and gleanings—
- Microstylis Scottii... 367

Perennials from seeds, raising hardy ... 373
Pests and their control, seasonal 370
Rose garden—
- Aphides and mildew 373

Societies—
- Royal Gardeners' Orphan Fund ... 384
- Royal Horticultural 374

Watercress from a hot-bed 366
Week's Work, the 368
Wisley, note from ... 370

ILLUSTRATIONS.

Anemone potentilloides 371
Chelsea Show: exhibits at the ...374, 375, 377, 378, 380, 381, 382
Hydrangea seedlings, one-year-old 367–368
Meconopsis pseudointegrifolia at Glasnevin 369
Odontoglossum Imperator 374
Primula microdonta alpicola 377
Rose Golden Salmon 373
Rottlera Forrestii... 371
Whitehead, Sir Henry, portrait of 366

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 57.6°.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 25, 10 a.m. Bar. 30·3. Temp. 58°. Weather, Sunny.

Agriculture in 1926.

There are few more valuable and few more neglected Government publications than the *Agricultural Statistics*, published each year by the Ministry of Agriculture. Their value lies in this, that they give a picture—in dull, and at times sombre tones—of the vicissitudes of British agriculture. The statistics afford also a grim, if indirect, commentary on the difficulties which climate imposes on our farmers. For although it is true that our climate is such as to allow of a vast variety of cultivation, yet its capriciousness is apt to destroy in detail what it encourages in bulk. Thus in 1926—the year with which the Report deals—Potatos were grown on just short of half-a-million acres, an area which has only rarely been exceeded. The grower, up till July, could look with some confidence to a large crop; but bad weather disposed of all hope of a good crop, and disease which followed in consequence of a wet summer, reduced yields to the poor average of 5·5 tons to the acre, so that only some two-and-three-quarter million tons were harvested. How far this low yield might have been mitigated by opportune spraying is hard to say; but it is probable that some considerable saving of the crop might have resulted. Unfortunately, wet spraying is a somewhat expensive operation, and our farmers are apt to neglect this form of insurance. Efforts made during the war years to encourage spraying were, for the moment, successful, but the operation has never become a routine part of Potato growing here, as it has in Ireland. It is possible that more success would attend attempts to encourage dry spraying. It is interesting in connection with this crop to note that according to the Report, allotment holders cultivated in 1926 some 80,000 acres of Potatos, with a production estimated at nearly half-a-million tons. The most striking statistics in the Report are those relating to Sugar Beet. Over 125,000 acres were devoted in 1926 to this crop, chiefly in Norfolk and Suffolk, which, between them, grew almost 60,000 acres of Beet. The yield was a little over a million tons, and showed an average of about eight-and-three-quarter tons to the acre, which average is bound to be raised with each year's experience of this new crop. The labours of farmers are like those of Sisyphus, unending, and some of them, at all events, are apt to be made as vain. Apples, for example, which are grown on nearly a quarter-of-a-million acres, were so ruined in 1926 by spring frosts, that each tree on the average gave the puny yield of 10¾ lbs., and a total production of so little as 1,166,000 hundredweights. Pears which are less suitable to our climate did better, and gave an average yield of 23½ lbs. and Plums for once had a moderately good year with a yield of nearly 30 lbs. per tree. This market garden of ours grows wide and increasing breadths of vegetables and small fruits: Cabbages, 25,000 acres and more; Brussels Sprouts, a like area; Cauliflowers and Broccoli, about half as many acres; Rhubarb, a mere 6,000 acres, but of Strawberries, no fewer than 26,000 acres; Raspberries, 6,680 acres. Black Currants, 12,000 acres and Gooseberries, 17,000 acres—a vast range, and no mean extent of cultivations. The net effect is to ensure the nation from sending many millions of pounds abroad, and to bring but little profit on the average to the material produced. Yet, despite hard times, farmers continue always hoping with incorrigible optimism, for better times. For our part, we think that their hope will at last be justified, and that the stubborn fight they have put up against recent hard times will have its reward. This is the darkest hour that they have known for many a year—may it prove to be that darkest of hours that precedes the dawn!

Prizes for an Essay on Carnations. — The British Carnation Society is offering three prizes for essays on "My Favourite Carnations—and Why." The competition is open only to members of the British Carnation Society, and the essays must be signed with a nom-de-plume, and reach the Secretary not later than August 31, 1927. It is proposed to publish the three essays in *The Carnation Year Book*, 1927, and the Committee reserves the right to publish any of the others, wholly or in part, in 1927 or a future issue of the *Year Book*.

Bearded Irises.—Mr. George Yeld, V.M.H., sends us the following note on the forthcoming show of the Iris Society in the R.H.S. Hall, Vincent Square, Westminster:—"The Iris Society, whose numbers have largely increased, holds its first show at Vincent Square, in the R.H.S. Hall, on June 2. The schedule offers to exhibitors many classes and many rewards—a silver challenge cup, offered by Mrs. Philip Runciman; a Veitch memorial medal, offered by the R.H.S.; and The Dykes Medal, offered by the Iris Society itself. There should be a goodly variety of flowers to be seen, and an opportunity will thus be afforded to those who desire to acquire an up-to-date knowledge of the advances made in colour, 'stance,' and fragrance. I may point out some of the Irises, which in the opinion of experts, hold a high place: Germaine Perthuis, Le Correge, Solferino, Labor, M. Cornault, Mme. Cecile Bouscant, and Ophelia, among the French novelties; Morning Splendour and Sir Galahad amongst the American-raised varieties; and W. R. Dykes, the famous yellow Iris, Mrs. Robert Emmett, and Miss Grace Sturtevant among the English-raised sorts. Of the older, but still comparatively new varieties, the following should be looked for: Ambassadeur, Mdlle. Schwartz, Souvenir de Loetitia Michaud, Lent A. Williamson, Shekinah Queen Caterina, Seminole, Peerless, Bruno, Romola, Mrs. Marian Cran, Mary Gibson, Ann Page, Aphrodite, Asia, Leonato and Amber. To those who propose laying out an Iris garden, I would suggest the advisability of planting white and yellow varieties among the darker ones. One American writer recommends one white or yellow sort to every three of darker colours. Unfortunately, whites are, as a whole, hardly up to the quality of the darker colours. Planters should, therefore, scan the exhibits carefully for white and yellow flowers."

Official Inspection of Growing Crops of Potatos in Scotland.—The Board of Agriculture for Scotland is prepared to undertake the inspection of Potato crops during the growing season with a view to the issue of certificates or reports for the assistance of growers or merchants in complying with the requirements of (*a*) the Wart Disease of Potatos Order, 1923, of the Ministry of Agriculture and Fisheries which governs the importation of Potatos into England and Wales, and (*b*) the Seeds Act, 1920, and the Regulations issued thereunder. As a general rule, application should not be made for the inspection of any crop unless it extends to a quarter-of-an-acre or more, but special consideration will be given to growers who have small stocks of new or scarce varieties. Certificates will be granted in respect of growing crops of immune varieties which attain a standard of purity of not less than 99·5 per cent. These certificates will be numbered in a series, and the numbers will be prefixed by the letters "T.S.," (denoting True Stock). Reports will be issued in respect of other growing crops, stating the percentage of purity within the following grades:—Grade "B": Less than 99·5 but not less than 97 per cent; "Mixed": Less than 97 per cent. Reports will also be issued in respect of growing crops of non-immune varieties, stating the percentage of purity within the following grades: Grade "A": Not less than 99·5 per cent; Grade "B": less than 99·5, but not less than 97 per cent.; Mixed: Less than 97 per cent. In addition to the above certificates and reports, the Board will issue special "Stock Seed" reports in respect of crops of both immune and non-immune varieties which are found on inspection during the growing season and at lifting to attain an exceptionally high standard of purity and appear to be free from disease (excluding Pit Rot and Blight). A crop will not be regarded as suitable for a "Stock Seed" Report unless it is the only crop of Potatos in the field or, if there is more than one crop, the varieties are separated by at least two rows of Turnips or by any crop other than Potatos, and there are no Potatos in the headrigs.

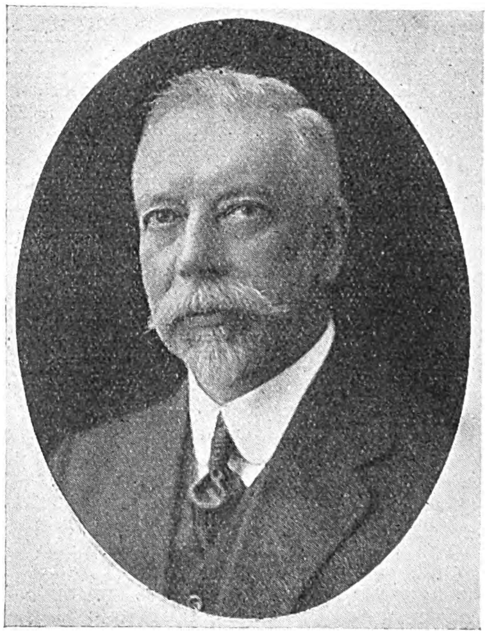
Edinburgh Royal Botanic Garden Guild.—This Guild is an Association of those who have been employed in the Royal Botanic Garden, Edinburgh, or who hold or have held positions of responsibility there, an association similar to the Kew Guild, and like the latter, publishes a *Journal*, of which Part III of Vol. 1 is before us. The frontispiece is an excellent portrait of Professor W. Wright Smith, F.L.S., the President, and the portrait is accompanied by a short biography. Professor W. Wright Smith succeeded the late Sir Isaac Bayley Balfour as Regius Professor of Botany at the University of Edinburgh and Regius Keeper of the Royal Botanic Garden. The text includes accounts of the annual general meeting in 1926, the financial statement, and much concerning individual members; also several letters from old members dealing with such subjects as the Cruickshank Botanic Garden, Old Aberdeen; Gardening in America; Impressions of Malaya; and Beauty of the Braid Burn. There is a list of the present staff of the Royal Botanic Garden and of members who have been connected with the garden in the past. Amongst the latter we notice many well-known names in the horticultural world, including Mr. W. Cuthbertson., J.P., V.M.H., Mr. G. Forrest, V.M.H., Mr. T. Hay, Superintendent of Hyde Park; Mr. D. Murdoch of Holyrood Palace Gardens, Edinburgh; Mr. R. Notcutt, nurseryman, Woodbridge; Mr. G. M. Taylor; Mr. A. D. Richardson; Mr. J. Christie, Superintendent of Camberwell Public Parks; and Mr. W. Hepburn, Superintendent of Greenwich Park.

French Site-Planning Competition.—A fourth competition is being arranged by the Lyons "Beautification Society" in which prizes are offered for the best suggestions for the laying out of the unoccupied land lying at the junction of the Rhône and Saône. Competitors are given full latitude as regards the manner of utilising the ground, and are at liberty to allow their imaginations to range at will among gardens, squares, buildings of all kinds, industrial or other dwellings, and public offices. In the event of any of the competitors planning a Rosery, it is to be made large enough to contain at least two thousand varieties, and to include a house large enough for a park-keeper and his family. As, however, the ground is very exposed both from north and south, some sort of shelter would probably be necessary. The competition is apparently open only to French entrants.

British-raised Hydrangeas.—Mr. T. Vallance (see page 347) of West Lodge, Greenfield House, Alloa, informs us that he saved seeds from cross-fertilised Hydrangeas in 1914, sowed them in 1915, and flowered the seedlings in 1916. He states that all the white seedlings were the merest weeds, but some of the coloured sorts were quite good. He adds, "I have been saving seeds since I was at school and know now that many of the crosses made were impossible ones; for instance, I endeavoured to cross Clianthus Dampieri with the pollen from Sweet Peas, and vice versa; and to cross Sweet Peas with the pollen of the yellow Trefoil and yellow Broom in the hope of getting a yellow Sweet Pea. At present I am crossing and intercrossing Cyclamens and, in passing, would observe that, in my opinion, Cyclamens should not be shaded unless in flower, but I am experimenting in this connection."

The Fairchild Lecture.—The annual "Thomas Fairchild" lecture will be delivered at Shoreditch Parish Church on Wednesday, June 8, at 5 p.m., by the Rev. Richard Hanson, M.A., B.D., Lecturer in Dogmatic Theology in King's College, London. The lecture is held under the auspices of the Worshipful Company of Gardeners and takes its name from Thomas Fairchild, of the Parish of St. Leonard, Shoreditch, in the County of Middlesex, Gardener and Clothworker of London, who, by his will dated the 21st February, 1728-9 (which was duly proved on the 23rd day of October, 1729), "gave and bequeathed to the Trustees of the Charity Children of Hoxton and their successors and the Churchwardens of the said Parish of St. Leonard, and their successors, the sum of £25 to be by them placed out at interest for the payment of 20/- annually for ever for the preaching of a sermon in the said Church of St. Leonard, Shoreditch, by the lecturer of the said parish or such other person as the said Trustees and Churchwardens and their successors should think proper, in the afternoon of the Tuesday in every Whitsun week in each year on the subjects following, viz.: 'The wonderful works of God in the Creation,' or on 'The Certainty of the Resurrection of the Dead, proved by the certain changes of the animal and vegetable parts of the Creation.'" Invitations to attend are being sent to the Ministry of Agriculture, the Royal Society, the Worshipful Company of Clothworkers, the Royal Horticultural Society, the Royal Botanic Society of London, and the Shoreditch Borough Council. The company will assemble in the Church Room, adjoining Shoreditch Church, at 4.45 p.m., and will be met by the Vicar, the Rev. F. E. Birch, M.A., and enter the church in procession. Prior to the assembly, the company will deposit a garland of Laurel on Thomas Fairchild's tomb in the public recreation ground on the west side of Hackney Road. The church is about five minutes' walk from Old Street Tube Station, and a tram from that station passes the church doors, whilst motor omnibuses from most parts of London and tramcars from Liverpool Street stop near to the church.

Southport Flower Show—The Schedule of the fourth annual Southport Flower Show, to be held on August 24, 25 and 26 next, has just been issued. Prizes to the value of over £4,000 will be offered; they include many new trophies and the *Daily Mail* £100 Gold Challenge Cup for the best-scented Carnation registered with the British Carnation Society will again be competed for. Amongst the numerous interesting classes in the schedule are the Open Championship Classes for a decorated table of fruit and for a collection of twelve distinct kinds of vegetables, respectively. Rock and water gardens are a great feature of these Southport shows, and it is anticipated that, with the additional ground which is being prepared for non-competitive formal gardens this year, this section of the show will be better than ever. In addition to the Great Marquee—which will be still further enlarged and will occupy about 11,000 square feet more than at the 1926 show—there will be two other tents. Gold and silver medals and Certificates of Merit will be offered for horticultural sundries in thirty classes. Last year the provincial show of the National Rose Society was held in connection with the Southport show, and this year the thirty-third exhibition of the British Carnation Society will be held at Southport. The Carnation Society's classes are incorporated in the schedule of the Southport show, copies of which may be obtained post free from the Secretary, Southport Flower Show, Town Hall, Southport.



SIR HENRY WHITEHEAD.
Chairman of the Royal Gardeners' Orphan Fund Festival Dinner on the 20th inst.
(see p. 384)

Watercress from a Hot-bed.—A German correspondent of our contemporary *Die Gartenwelt* (Berlin) states that he has successfully cultivated Watercress (Nasturtium officinale) on a hot-bed, and adds that this method is much simpler than cultivation in running water. The method he adopted is to obtain seeds of the best Erfurt Watercress in July, and sow them in a shady place, well watering the plants when they appear. When strong enough, they are transplanted to a well-rotted hot-bed, and again well-watered, after which they can be left awhile uncovered. After the lights have been closed, the leaves soon become tender and delicious, and there will be a succession for a considerable period, especially if a warm covering can be provided, and the frames closed against frost. It is stated that even better results may follow if the Watercress is cultivated in a frame heated by hot-water, when a succession may be obtained the whole winter through.

The Iris Society Prize Fund.—In connection with the Iris Society's first show on June 2, at the R.H.S. Hall, the following awards will be available: The Royal Horticultural Society has kindy offered the Veitchian Medal; the American Iris Society has offered one Silver Medal; the Iris Society's Medal in silver-gilt and bronze will be available; and the Dykes Memorial Medal will be open for award this year. In addition to these, cash prizes are offered, and it is felt desirable that the ordinary funds of the Society should not be encroached upon more than is absolutely necessary for this purpose and for other expenses in connection with the show, such as advertising, printing, etc. The total amount required is £36. Although the trade members of the Society have generously agreed to guarantee this fund up to £25, it is hoped that by the wholesale support of members it will not be necessary to call upon them to fulfil this guarantee. In addition to the awards mentioned, Mrs. Phillip Runciman has kindly presented the Society with a fine silver Challenge Cup.

Vegetable Alkaloids.—At the meeting of the Association of Economic Biologists, on May 13, Lt.-Col. A. T. Gage, C.I.E., stated that alkaloids are yielded chiefly by the following plants: Aconitum Napellus, L. (Aconite); Berberis aristata, DC. (Berberin); Papaver somniferum, L. (Morphine and other alkaloids); Camellia Thea, Link. (Caffeine); Theobroma Cacao, L. (Theobromine); Erythroxylum Coca, Lamk. (Cocaine); Pilocarpus pennatifolius, Lem. (Pilocarpine); Physostigma venenosum, Balf. (Physostigmine or Eserine); Conium maculatum, L. (Conine); Cinchona, various species, (Quinine and allied alkaloids); Coffea arabica, L. (Caffeine); Psychotria Ipecacuanha, Stokes. (Emetine); Strychnos Nux-vomica, L. (Strychnine); Nicotiana Tabacum, L. (Nicotine); Datura Stramonium, L. (Daturine); Atropa Belladonna, L. (Atropine); Hyoscyamus, niger, L. (Hyoscamine); and Claviceps purpurea, Tul. (Ergotine). Dr. T. A. Henry stated that during the century that has elapsed since the discovery of the first alkaloid morphine, great progress has been made in our knowledge of these indispensable drugs. Such well-known alkaloids as Cocaine and Atropine have been made in the laboratory, the synthesis of Quinine and the related Cinchona alkaloids may be expected at any time, and except in minute details, experts are now agreed as to the structure of even such a difficult alkaloid as Morphine. Though supplies of alkaloids are still drawn wholly from natural sources, neither scientific curiosity nor the practical possibility of increasing and cheapening supplies has led to the same intensive study of the bio-chemistry of alkaloids and virtually nothing is yet known regarding either the methods by which alkaloids originate in plants, or the part they play in plant physiology. Dr. Trevan discussed the medical aspects of the plant alkaloids.

Scholarships for Agricultural Workers.—The Ministry of Agriculture has published a report on the scheme of scholarships for agricultural workers, and states that those in Class 2, *i.e.*, for two-year diploma courses at agricultural colleges and other courses at farm institutes and similar institutions respectively, have benefited by the scheme, many having already substantially improved their positions. One of the scholars, formerly a working gardener, is now a horticultural instructor, and another working gardener is head gardener and gardening instructor at a farm institute. Most of the scholars in Class 2 have obtained national diplomas in addition to college diplomas. At the date of the Committee's Report, 355 Class 3 students had completed their courses, of whom 294 gained the certificates or diplomas issued by the institutes, 102 obtaining first-class certificates or certificates with distinction, and no fewer than 28 of the students securing first places in the courses. There were five gold medallists, one silver medallist, and a number of other prize winners.

Austrian Horticultural Centenary.—The Centenary Exhibition of the Austrian Horticultural Society was held from April 28 to May 4 in the Wiener Neue Hofburg, the former Imperial Palace, the halls of which were transformed for the time being into a fairyland of flowers and foliage. The arrangements were excellently made, and great taste was displayed both by the organisers and the individual exhibitors in making everything harmonise one with another, and with the decoration and style of the different rooms. In the first hall was a striking group—a statue by the well-known Vienna sculptor, Hanak, "The Burning Man," stood in a great mass of Azaleas, while white Rhododendrons formed a background to the group. In another room were ripe Cherries, side by side with trees still in bloom. A wide red carpet was, on closer inspection, found to be formed of closely laid, scarlet Strawberries. Japanese garden art was represented by a garden complete with imported dwarf Conifers and Oaks; and a Mexican landscape offered a suitable background for a group of Cactaceous plants. Giant blue and red Hydrangeas filled another hall, and the art of the florist was displayed in a separate exhibition. A room was set aside for the display of garden plans and sketches, including an interesting design for laying out the Vienna town park in the newest American style. Perhaps the greatest attraction in the Exhibition was the Japanese garden shown by the firm of Gessl, Vienna; but much interest was also shown in the Anthuriums, Schizanthuses, Codiaeums, Dieffenbachias, Calceolarias and forced fruit from the Rothschild gardens. So great was the number of visitors that at one time it was necessary to stop the entrance of any more, as the crush in the halls was considered dangerous. Besides local visitors there were great numbers from Germany, notably from Cologne, and from Baden and Württemberg.

Appointments for the Ensuing Week.—MONDAY, MAY 30: Romsey and District Gardeners' Association's outing. WEDNESDAY, JUNE 1: Nottingham and Notts. Chrysanthemum Society's meeting. THURSDAY, JUNE 2: Iris Society's show. FRIDAY, JUNE 3: Accrington and District Chrysanthemum Society's meeting; British Mycological Society's Spring Foray at Marlborough (five days). SATURDAY, JUNE 4: Darwen and District Agricultural Association's show; Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Sale of Conifers.*—Messrs. Loddiges' first sale took place at Stevens's on Tuesday last. It was confined to hardy Conifers in pots. Some idea of the kind of prices they realised may be gleaned from the following: Lots consisting of Abies (Picea) amabilis, Pinus Wincesteriana, and other good varieties, 4/-; Abies (Picea) grandis, Abies (Pinus) Pinsapo, and others, 5/6; Abies grandis, diffusa, and others, from 5/6 to 7/6; Abies grandis, Pinus Lambertiana, and others, 5/-; other lots fetched from 5/- to 12/- each lot. *Gard. Chron., May* 29, 1852.

Publications Received.—*Gardening in Town and Suburb*, by Doreen Joad; The Labour Publishing Co., 38, Great Ormond Street, W.C.1; price 2/6, cloth; paper, 1/-.—*Consider the Lilies*; issued by W. E. Marshall and Co., Seedsmen and Plantsmen, 150, West 23rd Street, New York.—*Plant Autographs and their Revelations*, by Sir J. C. Bose; Longmans, Green and Co., Ltd., 39, Paternoster Row, E.C.4; price 7/6 net.—*The Gardeners' Colour Book*, by John Fothergill; Alfred Knopf, 38, Bedford Place, W.C.1.; price 5/-.

INDOOR PLANTS.

HYDRANGEAS FROM SEEDS.

THE initial success obtained by Mr. H. J. Jones with his seedling Hydrangeas at Vincent Square, on April 26, has aroused much interest among gardeners. We began crossing Hydrangeas at Chorley Wood in the summer of 1925, at the same time Mr. Jones did at Lewisham, although neither of us knew what the other was doing.

The true flower of the Hydrangea is a very small affair; the large bracts provide the attraction. There is usually one large female flower to each little twig of the flower-head, and this is in the centre. Fertilisation should be done early—so soon as the small flower is fully open; after fertilisation the flower-head should be allowed to remain on the plant until well into the autumn. I have had some remarkable colour effects in these old flower heads kept for seed. A plant of Viking last year carried two large heads which turned from pink to green and then to a rich blood-red, this last colour remaining for a month.

The flowers of some varieties are more easily fertilised than others, but if sturdy plants of a good strain of the old H. Hortensia are obtainable, it is advisable to utilise them, as they impart robustness to the seedlings. When the old head of fertilised flowers is ready it should be cut and dried, and a few weeks later the tiny seed-pods may be removed and packeted.

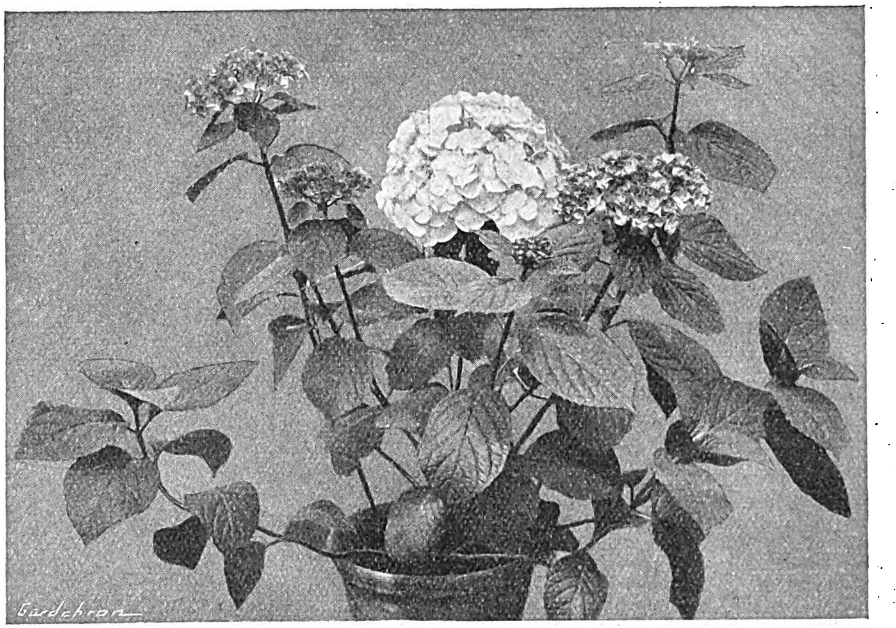


FIG. 173.—ONE-YEAR-OLD SEEDLING HYDRANGEA IN AN EIGHT-INCH POT.

The seeds are very small; I should think among the very smallest. The simplest method of sowing them is to break the pods over the surface of sandy soil that has been well watered, and cover them with a sheet of glass. Seeds were sown thus in February and the seedlings appeared in about a fortnight. The subsequent treatment accorded was similar to that adopted for seedling Begonias. During the summer the plants were stood in a cold frame, on ashes, with the lights removed on warm nights.

It is too early yet to determine whether the seedlings are evergreen or become defoliated during the winter. Our plants were kept cool last winter and remained evergreen. When about six months old a number of shoots spring from the base of each plant, and if single, specimen heads of bloom are desired these must, of course, be removed; some of the Chorley Wood seedlings carried a central flower-head and up to half-a-dozen partly-opened heads at the same time. Out of a first batch of fifty plants there were hardly two alike in foliage and habit; they ranged from dwarfs, in forty-eight-sized pots, to giants in eight-inch pots (Figs. 174 and 173).

Hydrangeas grown in pots are not blue naturally, but some varieties show a trace of mauve and in this connection a curious point has arisen. Pots that have contained "blued" plants and soil should be used only for the blue class, because it would appear that a certain proportion of iron (?) will remain in the porous potteryware, and if these pots are subsequently used for pink varieties, or seedlings, it is very probable that there will be just enough material released from the pot to spoil the pink colouring.

Notwithstanding the many fine varieties of Hydrangeas now in commerce, there are great possibilities in the development of new colours and shades that may prove valuable additions to a popular race of garden plants. *Geo. W. Stacey, Chorley Wood Cedars.*

ORCHID NOTES AND GLEANINGS.

MICROSTYLIS SCOTTII.

THIS terrestrial Orchid combines beauty of flower with beauty of foliage to an extent unattainable and seldom found among plants of the order Orchidaceae, and it compares favourably with many species grown solely for their decorative value. It is figured in *Bot. Mag.*, t. 7,268.

Being a native of Penang and the Malay Peninsula, it requires a stove temperature all the year round, with a resting period, during which water should be withheld. The flowers are borne on an erect spike, springing from the centre of the young growth. The ovary is not twisted, and the labellum is the most conspicuous part of the flower, contrasting, with its deep, creamy colour, against the deep, brownish hue of the petals, sepals and rachis.

The leaves are particularly pleasing, being of a deep, purplish-brown around the midrib, and lighter in colour, but prettily marked around the margins.

Towards the end of summer, when the young growth has formed a pseudo-bulb, the plant may be gradually dried off so soon as the leaves fade and fall. In early spring the pseudo-bulbs should be shaken out of their compost and placed separately in receptacles containing pure silver sand. So soon as roots and shoots appear the pseudo-bulbs should be potted singly in large sixty-sized pots in a compost consisting of equal parts of loam and peat, Sphagnum-moss and sand, and crocks. Microstylis Scottii will eventually repay all care that is taken in its cultivation.

M. congesta, a green-flowered species, of much coarser growth; M. Wallichii, and M. Mackinnonii, will respond to the same cultural methods. *J. Robbie, Kew.*

The Week's Work

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Odontoglossum.— Plants of the grande and Insleayi section, which include the largest flowered of all known Odontoglossums, require a slightly higher temperature than, and somewhat different treatment, to the alpine species of New Granada. Where O. grande and its congeners, O. Insleayi and O. Schlieperianum, are found growing in their native countries, the average mean temperature is high, and there is a dry season of four to five months duration. During the winter these Orchids are best grown at the cooler end of a house in which an intermediate temperature is maintained, where they can have a period of rest, but during the summer the warmer end of the Odontoglossum house is more suited to them. O. grande, with others of these Mexican Odontoglossums, will have commenced to grow, and when roots develop from the bases of the new growths, any necessary repotting should be done. O. Williamsianum, which is a hybrid of O. grande, is at the present time throwing up its flower-spikes, and the repotting of this variety should be deferred to a later period. O. grande usually produces its flowers during the winter, whilst O. Insleayi and its varieties bloom in August and September. These Orchids make thick, fleshy roots and resent a sour compost, therefore, it is advisable to repot them when the compost has the slightest appearance of being decomposed. The compost usually employed for Odontoglossums is suitable for these plants, but it should be thoroughly cleared of dusty particles and used in as rough a state as possible.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Runner Beans.—Well-hardened plants of Runner Beans growing in pots or boxes may now be planted into the positions which have previously been well prepared for them, but before doing this, water the soil in the receptacles containing the Beans. Lift the plants with a good ball of soil at the roots, and disturb the latter as little as possible. The plants should be set alternately in double rows, allowing a distance of not less than twelve inches each way. The stakes on which the Beans are to be trained should be placed in position before planting; should the weather prove frosty, they will offer a ready means of carrying the necessary coverings. In hot, dry weather the plants should be kept well watered. It will be wise to place a small band of soot around the base of each plant. Keep a sharp watch for black fly, and spray the foliage at once with Quassia extract so soon as the pest is detected.

Waxpod or Butter Beans.—The Waxpod Bean is generally regarded as a greater delicacy than the ordinary dwarf and runner varieties. Seeds may either be sown out-of-doors in May or seedlings raised indoors and planted out now, on a warm, well-prepared border, sheltered from cold winds.

Marrows.—Strong, well-hardened Marrow plants may be set in the open, provided temporary protection can be given them when necessary; evergreen branches stuck around the plants are very useful in warding off cold winds.

Tomatos.—Strong Tomato plants may be planted against warm walls or fences facing south, but it will be wise to have protective materials ready at hand in case of frosts. The soil for Tomatos should not be of a rich nature, which favours strong, sappy growth. Good loam, mixed with burnt refuse, old mortar rubble or lime and a small quantity of bone-meal is suitable. Make the ground very firm before planting. Pinch out all the side-growths while they are very small, and train the plants to a single main stem. After about five good trusses of fruits have set, the point of the leading stem may also be pinched out. Do not attempt to feed the plants until the fruits are swelling.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Chrysanthemums.—Plants of Chrysanthemums that are being cultivated to produce large blooms should now be placed in the pots in which they will flower, but this should not be done before they have been hardened sufficiently to withstand cold winds, otherwise some of the lower foliage may drop. The receptacles may be from eight inches to ten inches in diameter; the larger size is suitable for strong-growing varieties. The pots should be clean and well-drained. Cover the crocks with turf, from which most of the fine soil has been shaken, for efficient drainage is essential for Chrysanthemums. The compost should consist chiefly of good loam, adding leaf-mould, manure from an old Mushroom-bed, and, to each barrow-load of soil, one four-inch potful of bone-meal, the same amount of soot, and a little Chrysanthemum fertiliser. The compost should be prepared and the ingredients thoroughly incorporated several days before it is used. Firm potting is necessary to ensure good, short-jointed growths, which are essential to produce large flowers. The shoots should be staked and the stakes made secure to wires arranged for the purpose. Careful watering is necessary at this stage; do not supply moisture in excess, and never allow the plants to suffer from drought. In hot, dry weather occasional sprayings during the day will prove beneficial to the plants. Green and black fly are sometimes troublesome, but these pests are easily destroyed by spraying with nicotine soap; see that the specific reaches the crown of the plant, for it is here that the fly attacks and harms the young leaves.

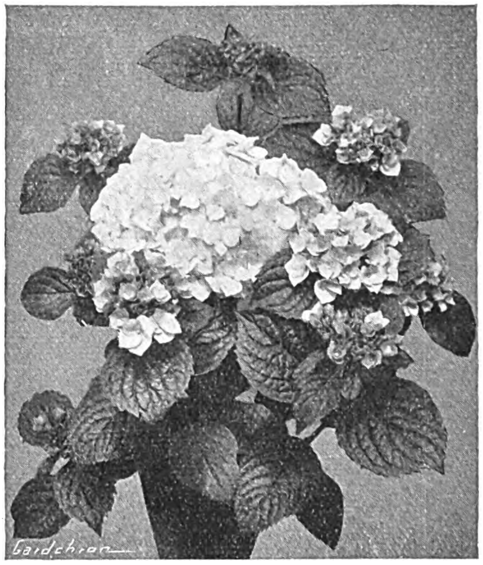


FIG. 174.—ONE-YEAR-OLD SEEDLING HYDRANGEA IN A 48-SIZED POT.

(see p. 367).

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Successional Melons.—As the days increase in length and the sun gains power, fire-heat may be greatly reduced in the house in which successional Melons are growing, provided the beds are carefully renovated. The plants are very subject to attacks of spider, therefore every part of the house should be well cleansed after the plants are removed and fresh fermenting materials should be used for the next batch.

Forced Cherries.—Houses in which the earliest varieties of Cherries are ripening should be kept somewhat drier on dull and wet days than heretofore, and as freely ventilated as may be consistent with the swelling of the later sorts grown in the same house. If trees in borders are well watered and mulched shortly before the fruits change colour, they will hardly require more root moisture until after the crop is gathered. Do not syringe at this stage, but if aphis is troublesome, fumigate the house on a fine, calm evening, when the foliage is quite dry, just before the earliest fruits show signs of changing colour.

Early Vines.—Vineries in which the Grapes are approaching maturity should be ventilated freely and less fire-heat used, while the amount of atmospheric moisture should be reduced. The roots of the vines should not be allowed to become dry, or even partially dry, as drought is one of the most common causes of the berries cracking. If cracking is troublesome with such varieties as Foster's Seedling and Madresfield Court, water the border once liberally after the berries have commenced to change colour, cover up the borders to prevent the escape of moisture, and keep the houses extra dry when the weather is very unsettled. If the laterals have been allowed to develop freely, the stronger ones may be shortened by degrees and the weaker left intact to cause the sap to flow freely. Keep a sharp watch for red spider; syringing being out of the question with ripening Grapes, the best preventive is sulphur. So soon as the Grapes are ripe, the house should be kept as cool and airy as possible, and unless the foliage is very dense, black varieties, which soon lose their colour, should be lightly shaded with fish netting. White varieties, on the contrary, are, when the berries are fully developed and fairly coloured, greatly improved by exposure to light, always provided a free circulation of air is maintained to prevent an excess of atmospheric moisture. So soon as the house is cleared of the crop, say, at the end of June, the vines will require careful management for the remainder of the summer, especially if the weather is hot and dry and there is the slightest trouble with insect pests, when the syringe or hose must be requisitioned. Laterals are a great help in giving strength to the main buds, but they should not be allowed to shade the main leaves.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Strawberries.—Although many of the buds and open flowers were destroyed by the late frosts, a fair crop of Strawberries is expected in these gardens. The plants are looking extremely well in some cases, but the soil requires a good soaking of water to help the berries to swell. The beds should now be covered with clean straw, if obtainable, to prevent the berries from becoming soiled. First clear the ground of weeds so that no more attention in this respect will be needed until after the fruits have been gathered. The berries of early-fruiting varieties planted on a warm border should be protected from birds; drive light posts, four or five feet high, into the ground at reasonable distances apart, on the outsides of the bed and at intervals in the beds. Fasten wire on the tops of the posts to carry fish netting and make the ends and sides of the netting proof against the birds.

Pears.—The fruits on wall trees have set very freely and some amount of thinning will require early attention. Before doing this important work consideration should be given to the size of the variety and the strength of the trees. Large varieties cannot be expected to develop good, well-flavoured fruits if too heavily cropped, and the same is true of trees that are not too strong in growth. Young trees especially should not be overcropped as this would exhaust their energies and result in feeble growth afterwards for some years. Small and imperfect fruits should first be removed, and later the number should be reduced to a suitable crop.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Spring-flowering Plants.—As these plants are removed from the beds and borders they should be divided and replanted in the reserve garden. Keep the plants in the shade until they are wanted for planting, and make them firm in the soil. They should then be well watered, leaving a depression along the lines for this purpose. When the water has drained away, draw the dry, loose soil up to the plants; this is a very efficient method of watering newly-set plants, and one application of water usually suffices, unless the weather is exceptionally dry. The plants to be dealt with in this way include Aubrietias, Iberis sempervirens, Phlox subulate in variety, double Daisies, such as Rob Roy, Alice and Dresden China (the very large-flowered, double Daisies are easily and best raised from seeds, which should be sown about the middle of June); Doronicums and Veronica gentianoides, together with its variety pallida. Violas that have been used for a spring display may be shortened back, divided and planted out in the nursery. Arabis albida fl. pl., the double-flowered Arabis, is best propagated from cuttings inserted now, for if propagated too early the plants usually become over-grown before the autumn.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Calceolarias.—Plants raised from seeds sown about this time last year are making a fine display, and in order to secure fresh stock, seeds should be sown at once in moderately cool conditions, as Calceolarias are comparatively hardy and resent much fire-heat. The many fine varieties now in cultivation offer the grower a wide choice to select from, and when well-grown, a batch of plants with their varied coloured and very large flowers command attention and admiration from most people. The seedlings should be pricked off into thumb pots so soon as they are ready to handle, and grown on, repotting them when necessary. They should be wintered in four-inch or five inch pots. When signs of new growth appear in March, they should be again shifted into larger pots, using a fairly rich compost, consisting of loam, leaf-soil, decayed manure and sand. When the pots are well-filled with roots the latter should be regularly supplied with diluted liquid manure. Care should be taken at all times to keep the plants free from green fly.

Spring Bedding.—Where the spring-bedding plants are over, the beds should be cleared, and, if the soil is exhausted, enriched with well-decayed manure, especially if it is intended to grow such plants as Begonias and Dahlias. Where Pelargoniums are still grown, additional manuring at this time is unnecessary, as these plants flower freely in poor soil. The carpeting plants, such as Arabis and Aubrietia, should be divided and replanted at once in the reserve garden, where they should be well-looked after in order to have useful plants again in the autumn. Daisies may also be put out in nursery rows, and if a quantity of old potting soil is placed at their roots, and the soil afterwards well-watered, the plants will soon become re-established. Wallflowers are usually of no further use, and may be cleared off. A plant of the old blood-red variety attracted much attention in a cottage garden recently; it was several years old, between four and five feet high, and made a wonderful show; when first viewed from a distance it was impossible to say definitely what it really was, as it looked like some glorious flowering shrub, instead of the lowly border Wallflower.

ALPINE GARDEN.

MESEMBRYANTHEMUM UNCINATUM.

I have tried to grow several of the Noon Flowers which appeared to hold out some promise of sufficient hardiness to withstand an average winter, but found only one which may be said to be hardy. This is M. uncinatum, not to be confused with M. uncatum, which has also been tried and proved too tender for my district.

The success with M. uncinatum was a greatly modified one, as it was found that though on a sunny, sheltered part of the rock garden, it never bloomed, although it made a good-sized specimen. It is a plant of unique appearance among its companions, with its thick, succulent, sharp leaves, which remained all the winter. It was not to be despised, although its failure to bloom was a great disappointment.

Were I to try it again it would be on a sunny, sheltered wall. *S. Arnott.*

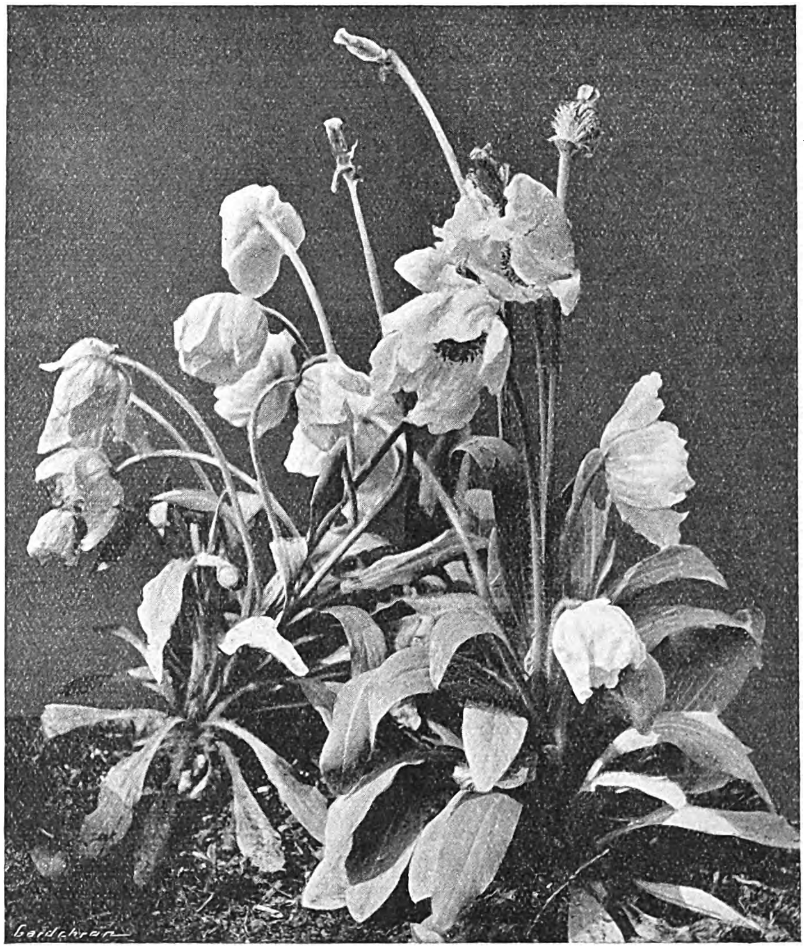


FIG. 175.—MECONOPSIS PSEUDOINTEGRIFOLIA AT GLASNEVIN.
(see p. 371).

CHEIRANTHUS HARPUR CREWE.

Those who do not consider double flowers out of place on the rock garden will find Cheiranthus Harpur Crewe an excellent plant for the rockery.

It forms a neat bush, eighteen inches to two feet high, and about as much round, bearing in March and April, numerous short spikes of bright, double yellow flowers, which, from a distance, suggest a golden crown.

The flowers are sweetly scented and last a considerable time The variety is perfectly hardy and perennial, and is effective either as a specimen plant or in drifts on a sunny slope of light soil. It will also succeed on the upper courses or top of a dry wall. *L. Le C. T.*

PRIMULA GIRALDIANA.

This delightful little Primula was, I believe, discovered by Forrest, in Yunnan, in 1908, and was for a time known as P. muscarioides; the inflorescences, when in an undeveloped state, bear a marked resemblance to those of some of the Muscari. The flowers are violet-blue, almost a good pure blue. The plant may be colonised on the margins of streams or ponds or in the rock garden, if provided with a deep and moist root-run. The flowers appear in April; the leaves are coated with soft hairs, a warning to growers that excessive winter damp is inimical to the plant, although I have not noticed any great mortality from damping.

As in all the Muscaroid Primulas, the flowers of P. Giraldiana are aggregated in a close spike, the mouths of the corollas hanging downwards. The flowers begin to open at the bottom of the spike and proceed regularly to expand upwards. The opened flowers, surmounted by the purplish cone of buds, give the plant a most distinctive and Muscari-like appearance.

The flowers are faintly, but pleasantly fragrant. *Ralph E. Arnold.*

HARDY FLOWER BORDER.

CHRYSANTHEMUM ULIGINOSUM.

As a subject for the herbaceous border, Chrysanthemum uliginosum (syn. Pyrethrum uliginosum) is much appreciated. It makes a splendid show during September and October and the elegant heads of pure white flowers are delightful for arranging in vases and eminently suitable able for church decoration, harvest festivals, etc.

The plant is not particular as to soil or situation, but it does best in a good, medium loam which has been dug deeply and manured liberally. March is a suitable time for planting; the old clumps should be lifted and carefully pulled apart, rejecting the weak, central growths, and selecting the stronger ones from the outside for planting at a distance of nine inches apart to form a large clump. During its first season Chrysanthemum uliginosum will attain a height of from four-and-a-half feet to five feet. *T. H. Everett.*

SEASONAL PESTS AND THEIR CONTROL.

Leaf-eating Insects.

"Damage by Caterpillars" is a phrase well-known in all parts of the country. There are many caterpillars which attack fruit trees generally, whilst there are others which attack particular crops only.

The caterpillars responsible for most of the damage are those of the Winter Moth, Mottled Umber, March Moth, Codlin Moth, Small Ermine and Magpie Moth, and the grubs of the various Sawfly.

The general method of attack consists in coating the foliage and young fruitlets with a stomach poison, such as arsenate of lead, Hellebore powder or Derris. The main object aimed at is (1) to secure an even coating of the poison, and (2) to have it in position either before or just as the caterpillars are hatching out, because in the earlier stages they are much easier to kill.

Two kinds of arsenate of lead are offered, namely, arsenate of lead paste and arsenate of lead powder. The former has enjoyed a very extended use for a number of years, and on analysis should contain not more than fifty per cent. moisture, not less than fifteen per cent. arsenic pentoxide, and not more than a half per cent. soluble arsenic tri-oxide; the latter, as the name implies, is a dry powder arsenate of lead, which should contain not more than two per cent. moisture and not less than thirty per cent arsenic pentoxide, and not more than a half per cent. soluble arsenic tri-oxide.

Arsenate of lead paste is used at the rate of three to four pounds per 100 gallons of water. The powder is generally used at half this strength. When applying arsenate of lead it is necessary to use a very fine mist sprayer, and where hard water is encountered, a suitable spreader is very desirable if an even film of arsenic poison is to be obtained.

There are various spreaders which may be used, namely, calcium caseinate, dried milk, saponin and powdered glue. It has been shown that powdered glue dissolved in water at the rate of 1½ lb. to forty gallons of water, possesses a property of holding arsenate of lead in suspension, and at the same time increasing the spreading properties.

The caseinate, dried milk and saponin, whilst possessing superior spreading properties to the glue, are not so good when considered from the point of view of aiding suspension.

Calcium caseinite should not be used where the water is known to contain much bi-carbonate of lime hardness, owing to the fact that the lime in the calcium caseinate re-acts with the bi-carbonate forming chalk, which is thrown out as a precipitate and leaves the casein as a gelatinous sludge on the surface of the spray fluid, thereby causing considerable annoyance from nozzle-clogging, etc.

When spraying with arsenate of lead, the usual practice is to carry out the operation immediately before the blossoms open, and again after they have set. It is never wise to use arsenate of lead during the actual flowering period, although under commercial conditions this is very often done. It has been shown that much damage has been done to bees, which are responsible for cross-fertilisation, from the use of arsenate during the flowering period.

In the case of Gooseberries and Currants, arsenate of lead, unless used in the very early stages, is not considered suitable owing to the risk of contamination of the fruit. In cases where it is desired to spray after the fruit has set, a paraffin emulsion might be used or Hellebore powder at the rate of four ounces up to 1 lb. in ten gallons of water, containing a suitable spreader or sufficient soft soap to encourage spreading.

Capsid Bug.

Capsid Bug is causing considerable trouble in various parts of the country, particularly in Wisbech and certain parts of Kent. It is a sucking insect which feeds upon the sap of the plants. The first signs of the attack are generally the appearance, in the early part of the season, of small, brown spots on the young leaves, which are caused by the punctures of the insect. As these leaves grow older the surrounding parts of the puncture either die or fall out or fail to develop, with the result that they become very deformed, ragged and under-sized.

The bugs also attack the shoots, which are often checked or even killed, and thus encourage the formation of excessive numbers of side growths. The fruits are also attacked, and in a case of a bad infestation, they are unmarketable.

There appears to be some variation in the extent of injury to different varieties of Apples, Bramley's Seedling sometimes suffering less than others. Black and Red Currants are also attacked.

The Capsid Bug is a very difficult pest to control, requiring very careful, thorough and systematic spraying. The main thing is to hit the bug, which is a somewhat difficult matter.

A fairly coarse nozzle with very high nozzle pressure should be used, the best results being obtained at a pressure of 170 lbs. to 200 lbs. to the square inch. The best time to spray varies considerably with the season, but it is generally during the week or ten days immediately preceding the bursting of the blossom. A careful watch should be maintained for the first signs of the spotting on the leaves.

Undoubtedly the best insecticide to use is a mixture of nicotine, 10 to 12 ounces, soap, 10 to 15 lbs., water 100 gallons. At the same time, this wash will be found very effective for killing aphides, sucker, etc.

White Fly under Glass.

This pest has appeared already in various parts of the country and appears likely to cause its usual amount of annoyance. White Fly must be controlled early, because, if the infestation becomes firmly established, it is difficult to deal with. For this reason fumigations at low concentrations and at frequent intervals are preferable to single fumigations at heavy concentrations applied occasionally.

White Fly may be successfully controlled by the use of tetrachlorethane, at about two-and-a-half ounces per 1,000 cubic feet concentration, but this must not be used for Cinerarias and Chrysanthemums.

Cyaniding is undoubtedly the most effective method, and of the two forms, calcium cyanide is to be preferred to sodium cyanide, as it is much more simple in application, and the gas is given off much more slowly than in the case of the sodium cyanide. Incidentally, no acid or pots are required in its application.

In America and in certain of the market-growing districts in this country, calcium cyanide is used as a routine practice, at low concentrations, applied at intervals of, say, a week.

The main conditions to be observed in its application are: a dry house, a dry atmosphere, an even temperature and a low dosage. *Theodore Parker.*

NOTES FROM WISLEY.

Almost every year late frosts take toll at Wisley, and the records show that 15° or more are often registered during the last week in April. Not for many years, however, has so much damage been done as of late. The whole of the Azalea bloom and that of most fruit crops has been ruined, while both flowers and foliage of many plants which usually weather the worst frosts have been completely seared. This is all the more surprising in view of the fact that the ground was quite dry, and that the amount of frost registered was not unusual for the month. A possible explanation is to be found in the high temperature registered during the day time and during the nights previous to two seccessive nights of sharp frost, and which may have brought things along too quickly.

Unfortunately, the frost has had little effect on insect pests. Green fly is abundant, and the frost-bitten buds of the Apple trees provide ideal conditions for the spread of the Apple-blossom weevil. Insects are also causing great damage to vegetable and other seedlings, the growth of which has been almost at a standstill on account of the drought.

There is now a good show of bearded Irises, although the frost damaged the flowers and even the flower stems of some plants. There are now so many as 987 varieties in the trial, but quite a number are very similar and one or two varieties bearing different names are for all practical purposes indistinguishable from each other. In flower against the Garden-Keeper's house are some pretty hybrid Irises belonging to the Regelia section, which were raised by the late Mr. W. R. Dykes. The flowers are delicately veined and of various shades of light purple and brown. The best known kinds of this interesting section are I. stolonifera and I. Hoogiana. They require a warm situation, and to be flowered successfully must be dug up about the second week in July and dried off until October.

Against the warm wall of the laboratory many good shrubs and climbing plants are in flower, the most conspicuous being Ceanothus dentatus and Solanum crispum. A less familiar plant is Olearia myrsinoides, with white flowers and handsome foliage, the under-surface of which is covered with a white tomentum. This is also a specimen of Teucrium fruticans, with large, Rosemary-like blossoms. Decaisnea Fargesii, a native of China, is also in bloom, the flowers taking the form of greenish bells. It is a dioecious plant and the female bears fruits which are edible and resemble big blue caterpillars. Another Chinese shrub in flower is Loropetalum chinense, which is nearly related to the genus Hamamelis. The foliage is evergreen, and the creamy-white flowers similar to those of the Witch Hazel. The fan-like branches of Cotoneaster horizontalis planted against this wall are crowded with blossoms in which bees delight. Large numbers of the fallen petals have been trapped in a spider's web beneath the plant, and a curiously attractive effect is presented.

On the rock garden many species of Veronica are in bloom. One of the most useful is V. filiformis, which makes a good carpet without becoming too rampant. Among the taller sorts V. gentianoides is conspicuous, while V. circaeoides, with lavender flowers, and V. pectinata with pink flowers and woolly foliage, are also noteworthy. Asperula suberosa growing out of the rock face is one of the finest individual specimen plants. It has grown even better than specimens in the alpine house, and the masses of pale pink, tubular blossoms cover a considerable area. Healthy growth is also seen in a bed of Gentiana verna, now in bloom. The plants were raised from seeds collected in Scotland and sown only two years ago. Had it not been for the ravages of cockchafer grubs there would have been an even better display. Iberis gibraltarica has not been damaged by frosts and is blooming well in company with I. Garrexiana. The latter is one of the very best and largest white-flowered perennial Candytufts. A peculiar feature of Erodium gruinum—with blue flowers now opening—is the beaked fruit which assumes the shape of a corkscrew and bores into the ground. Another pretty Heron's Bill in bloom is Erodium chamaedryoides, with pink flowers. Bright pink flowers are also a feature of a British Columbian variety of Phlox Douglasii, the type plant of which has lavender blooms.

The alpine house has still many objects of interest, particularly Saxifrages belonging to the Euaizoon group, such as S. cochlearis, S. norvegica and S. Hostii, with flowers spotted red. Here also is flowering a biennial Saxifraga, S. latepetiolata. Other plants in flower in this house include Linnaea borealis, Lloydia graeca, Brodiaea Douglasii, Lewisia Cotyledon and Lewisia columbiana which is considerably dwarfer than the preceding species. *J. E. Grant White.*

NOTES FROM GLASNEVIN.

The abnormally cold weather experienced during early April has persisted into the middle of May. Severe frost occurred on the night of Saturday, April 30. Soft, young growths on trees, shrubs and herbaceous plants were badly cut, and the Chinese Rhododendrons suffered severely. The damage done was not quite so bad as on May 10, 1926, as growth was not so far advanced, nevertheless, it is evident that many of the newer species of Rhododendron will have a hard struggle to get accustomed to our fickle climate. There is one hope, however, for it was noticeable that where one or two branches on a bush had formed flower buds the growth buds below were still dormant, whereas shoots without flower buds had made growths several inches long, and these were cut back. Possibly, therefore, when flowering becomes more general growth will be later.

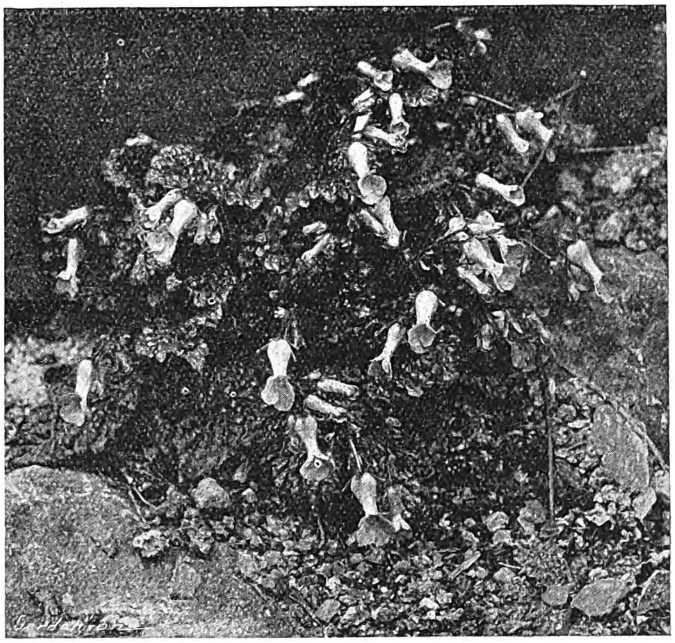


FIG. 176.—ROTTLERA FORRESTII.

The rock garden is now a centre of attraction and is gay with many bright groups of the more showy plants, such as Aubrietia, Alyssum, Iberis, Aethionema, Alpine Wallflowers, Androsace, etc.

Meconopsis pseudointegrifolia (Fig. 175) has flowered particularly well this year in the small bogs so useful in association with the rock garden. The main flower stem arises from the rosette of leaves, and just above them branches into several stems, each bearing a large, clear-yellow flower. The blue-flowered species are following fast, the spikes being already forward on M. aculeata, M. sinuata, M. rigidiuscula, and showing on M. racemosa and M. Prattii.

Rottlera Forrestii (Fig. 176), a delightful plant of the same family and habit as the Ramondia, is now in full flower. The flowers, borne three or four together on slender stems, are rich yellow, tubular, but smaller than those of Ramondia. Several plants have survived two winters in the open and look healthy planted vertically in a position facing north-east.

Another member of the Gesneraceae collected by Forrest, probably a Briggsia, planted in the same position, does not look so happy, but is alive. Repeated attempts to succeed with Briggsia amabilis in the open have failed, so that as far as Glasnevin is concerned, the genus does not hold out much promise for the rock garden.

Anemone potentilloides (Fig. 177) is a charming little species for those who like uncommon plants. Although lacking the vigour and brilliance of some of its congeners, it has much beauty in its starry, bright blue flowers on long stems, produced from a compact rosette of glabrous leaves. It has been suggested as an extreme form of Anemone obtusiloba, of which the variety patula is also in flower, but it seems far enough removed to merit specific rank; both plants are natives of the Himalayas.

A common plant, but one which never fails to charm, is the "Snowdrop Anemone," A. sylvestris. When planted in a large mass the flowers are so numerous as to hide the leaves and when gently swaying, as they constantly are, there is no more beautiful group in the garden.

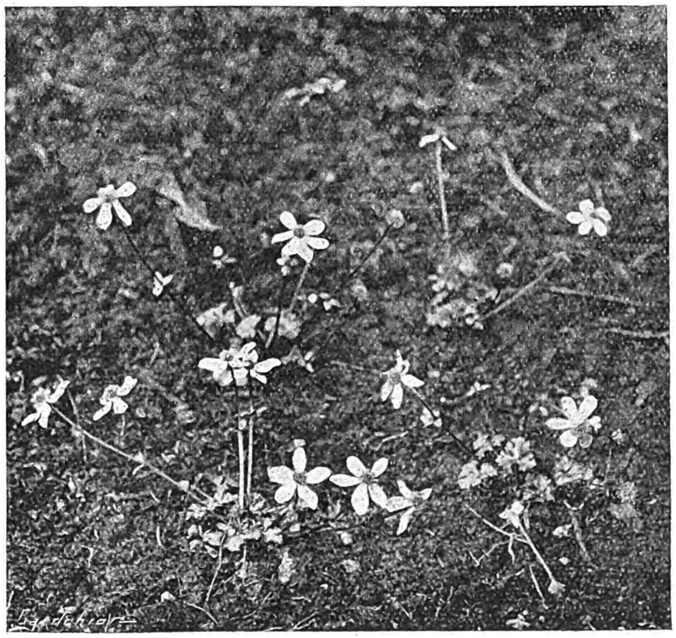


FIG. 177.—ANEMONE POTENTILLOIDES.

Saxifragas of the so-called encrusted section are now conspicuous, among them the many forms of S. Aizoon, including lutea, rosea and atrosanguinea. S. cochlearis is always admired for its graceful, arching sprays of white flowers; S. lingulata, also a plant of many forms, produces some wonderful effects, the best forms having arching racemes after the manner of S. cochlearis, but with different leaves.

Daphnes are interesting shrubs for the rock garden, and of these D. Cneorum is probably the most popular, forming at present a glorious mass of pure pink. Others now in bloom are D. arbuscula and D. Fioniana (neapolitana), both with purple flowers which become paler as they expand, and the robust but free-flowering D. caucasica, a mass of white, sweetly-scented flowers.

Of Rhododendrons, I write with diffidence, but the best of those in flower at present are R. ledoides, and R. sphaeranthum with Daphne-like clusters of small pink blossoms; R. obtusum japonicum (Kurume Azaleas) in shades of pink, some more attractive than others; R. Poukhanense, with lilac flowers and, among the large-leaved species, R. decorum.

Shrubs generally suffered from frost during the early part of the month, but a few escaped serious injury, notably the Brooms. All the better-known species and hybrids are flowering freely, and considerable interest is being taken in a small bed near the Leguminosae collection which contains some of the hybrids, including Dallimorei, still one of the best; Dorothy Walpole, unique in colour; Donard Seedling, and a collection of seedlings presented by Messrs. W. Watson and Sons, of Killiney, some of which are of considerable promise.

Spiraea conferta, a hybrid between S. cana and S. crenata, is flowering in succession to the popular S. arguta. The hybrid is of similar proportions, but the branches are less stiff, and curve gracefully when furnished with numerous corymbs of white flowers; it is a plant which may be recommended to those who are interested in hardy flowering shrubs.

The most interesting plant in the bog garden at present is Lysichitum camtschatcense album, which flowers considerably later than the yellow-spathed type. As it gains in age and strength this promises to rival the better-known species as the most striking of hardy Aroids. The yellow type received the R.H.S. Award of Merit on April 26 when shown by Messrs. M. Prichard and Sons.

Although less conspicuous than the May-flowering and Darwin Tulips, the species continue to give a good account of themselves. Notable at present is the dark, coppery-red Tulipa Hageri, and the taller, lighter-coloured variety, nitens; T. Didieri Mauriana, a brilliant bright scarlet, and the shy-flowering, pink T. saxatilis, which flowers best in dry, stony soil.
J. W. Besant.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden W.C. 2.

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER, *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Local News. -*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

PROBLEMS OF BOLTING.

THE appearance of bolting, simple enough to the eye, is the result of the action and interaction of such a multitude of varying conditions, particular and general, that we can only hope to bring order out of confusion by examining the question to some extent analytically.

We might, for convenience, consider bolting—arbitrarily, for the distinction cannot be maintained in practice—to be of two kinds: (1) premature flowering of a crop as a whole; (2) premature flowering of a portion of a crop. In the first case, the special problem would be a physiological one, concerned with the exceptional behaviour when exposed to exceptional conditions of genetically similar individuals, and the remedy lies in altering or controlling, where possible, these conditions. In the second case the special problem is a genetical one, concerned with the exceptional behaviour when exposed to normal conditions of genetically exceptional individuals; and the remedy lies in removing a defect, one that is inherent in most commercial seeds—*i.e.*, lack of genetical uniformity. In every case, however, it must be borne in mind that the capacity to flower at a given moment is due to the condition of the plant at that moment, and that this condition is the result of the particular genetic constitution of the plant and the particular external conditions under which it has been grown. Variation in this capacity can, therefore, always be studied from both a physiological and a genetical standpoint. Genetics and physiology approach the same problem from different aspects.

Whatever stimulates flowering must have a very different character in different species, on account of the different relationships between vegetative and reproductive life. For example, in some crops, such as Cabbages, Mangolds and Cereals, the vegetative life of the plant is almost complete before flowering begins; the whole of the accumulated reserve materials of the plant being employed in the simultaneous production of a large number of flowers. In others, such as Peas and Beans, the reproductive processes, which begin early, are carried on side by side with the vegetative processes with increasing vigour throughout life. Clearly, the accumulation of reserve products has not the same significance in relation to flowering in the two types.

Again, in different species the reserve materials are stored in different forms, and these conceivably modify the effects of special conditions, such as drought, in the stimulation of flowering.

Let us now consider two types of bolting in detail. If Lettuces are sown in spring they flower, after passing through a special vegetative phase, at a stage of structural development which varies with each race. It is sometimes said that subjection to shocks, such as transplanting in dry weather, will induce bolting, but although I have tested this suggestion by transplanting numbers of Lettuces of several varieties at different dates in May and June, in dry weather, no effect was ever produced save to retard maturity and flowering relatively to the controls. Indeed, by keeping Lettuces in dry conditions throughout the summer it was possible to postpone maturity almost indefinitely. Other checks, such as sudden changes of temperature, produced no effect on flowering. Yet it is certain that in other plants such effects can be produced.

There is clear genetical variation between different races of Lettuces in the time they will stand, mature, before bolting, although this time of course, is always subject to variation in conditions. The immediate stimulus to flowering is probably always a change in external conditions, for the uniformity with which a row of Lettuces will begin to bolt overnight can hardly be accounted for by the internal development of each individual having reached exactly the same stage at the same moment.

Bolting in crops grown as biennials is complicated by the fact that a period of suspension is introduced into the vegetative life of a plant during which flowering is rendered impossible by external conditions, the two most important factors in determining this phase being temperature and the daily duration and intensity of light. While in some species these are both negligible, in others they control the moment of flowering with precision. Many short-lived plants—Cotton and Ten-week Stock, for example—flower at a definite period after sowing; similarly, Beans, provided the temperature is kept above the critical level, will flower in as great profusion and with as great fertility in December as in June. Other crops, such as cereals, owing to the critical periodicity of light and dark necessary to permit flower-formation only occurring in this country about midsummer, are restricted, unless artificial lighting conditions are employed, to a definite period of the year, whatever time the seed is sown. In Tobacco this reaction is made use of commercially to control flowering. Normally, the root crops are sown just so late in the opinion of the farmer as to prevent their arriving at maturity and bolting before this dead period sets in, when light and temperature fall below their critical values. When the growing season is prolonged by fine autumn weather, bolting occurs for the same reason as autumn flowering in normally spring-flowering perennials. If the crop is sown too early a proportion bolts, while the later sowing reduces the yield because the growth of the crop is stopped prematurely. Further, if the season is favourable to rapid growth, the critical development is more likely to be reached before the fall of light and temperature below their critical values, and bolting will thus be similarly encouraged.

Beyond these three variables in conditions—time of sowing, favourableness of the season for growth, earliness of the fall of temperature in autumn, there is the fourth variable or group of variables—genetical constitution. The exceptional bolting of small individuals in a root crop is the specific result of the genetic property of these individuals, which causes them to flower early, and therefore only occurs in a crop raised from genetically mixed seed. The condition of this bolting is an abnormal season, but purity of strain provides a complete practical remedy.

I may state that there are two directions in which the bolting propensities of a strain may show that genetical variation which enables the plant-breeder to select an improved form. In the first place a difference in rate of growth, in size or food reserves, other things being equal, may constitute the difference between a bolter and a non-bolter; but it will be seen that if the breeder selects for non-bolting in a reduced rate of growth he is selecting also for a reduced yield or inferior quality.

In the second place there is an elusive property, or rather assemblage of properties, to which I can give no better name than responsiveness to the stimulus to flower. This consists in the amount of reserve material, or degree of development, necessary to permit flowering under given external conditions, and is of paramount economic importance. Only chemical analysis and measurement can determine to what extent each of these two possible variations is being selected for in choosing non-bolting plants to breed from.

The late Mr. Bateson found that many well-known varieties of Mangolds were exceedingly variable in respect of bolting. He selected from Golden Tankard and other varieties generally producing a proportion of bolters, certain individuals which did not bolt, although sown in heat in January, and almost immediately obtained strains which bred true to non-bolting even under the exceptional conditions of 1921, when not one of 1,700 plants from a sowing of April 12 showed any sign of bolting. That rate of maturing was, however, involved—that the difference was here, as always, a relative and not an absolute one—was shown by the bolting of one per cent. in one strain, and eight per cent. in another of plants raised from a December sowing of the previous year. It is not known whether such a high degree of freedom from bolting—perhaps an economically unnecessary degree—is compatible with the highest yielding capacity. In selecting these strains no attention was paid to this important practical question, and in consequence the quality of the roots may have slightly deteriorated. This need not, however, discourage the breeder from further efforts, which can hardly fail to yield economic advantages, for there is no reason to doubt that present yields can be maintained with complete freedom from bolting.

It is, perhaps, not too much to state that both genetically and physiologically bolting may be regarded as a normal, although very intricate, process. The physiological problem is not understood in detail, but far from standing alone it is in accordance with a considerable range of analogous phenomena. Making allowance for the complexity of the physiological processes, the genetics of bolting is equally in accordance with current views of analogous problems. There can, therefore, be no excuse for consigning bolting to a category of mysteries.

The remedy for bolting is clearly indicated; uniform cultural methods applied to crops raised from genetically uniform seed, rigorously selected for resistance to bolting, will, to a great extent, mitigate the effects of a capricious climate. *C. D. Darlington, John Innes Horticultural Institution.*

OLD-FASHIONED FRAGRANT FLOWERS.

THE complaint is often made that modern varieties of such flowers as Roses, Pinks and Carnations are lacking in scent, and whilst breeders have given us rich colours and fine form, they have neglected fragrance entirely. In the meantime, why not hark back to the days of our grandparents and grow those old-fashioned flowers, many of them now but a fast-fading memory? Those who traverse the byways of Britain will even now occasionally find a cottage garden glorified by the colours and perfumed with the fragrance of old-world garden Pinks, the real old Clove Carnation, Sweet Rocket (Hesperis matronalis), and Brompton and East Lothian Stocks. Auriculas of the "Dusty Miller" type ("Bagers," a corruption of Bear's Ears, in West Country vernacular) and double Primroses, brighten the garden in spring, and these are soon followed by single and double Wallflowers, these in their turn being succeeded by the Madonna Lily and old-time Roses, with masses of Lavender, Rosemary and of Artemisia—"Old Man."

It is an exquisite pleasure to imagine such a garden, and realisation may be secured at very small cost; the greater difficulty may be the procuring of some of these old favourites, as, for instance, some of the double Primroses. These exquisite flowers possess a faint but delicious perfume, reminiscent of woodland and hedgerow, and they are thoroughly British; the double white and double lilac varieties are easily obtainable, and such beauties as the double sulphur, the double red (Madame Pompadour) and double purple will be found, if not in England, then in the Emerald Isle, where they have for long been favoured.

Of Roses, it may be written, as of the Carnation, that colour and form have been improved out of all knowledge and fragrance almost entirely neglected; very few modern Roses can compare with Cheshunt Hybrid, which was raised almost half-a-century ago, for scent. As I write, I can visualise from memory an old specimen of this Rose growing against the wall of an old West-Country mansion; in June, and again in autumn, every breeze that blew wafted the most exquisite fragrance through the open windows and, after all, fragrance is, perhaps, a flower's most precious quality. There is much that is restful and soothing in a garden filled with the scent of flowers, a true haven of rest from the humdrum of daily toil. The Mignonette—there is something beautiful even in its very name—and the Night-scented Stock, may be sown near to the house and will for long render the summer evenings sweetly reposeful; Tobacco plants possess an elusive and pleasing odour and the Honeysuckles, redolent of English woodland and beloved of bees, will be a joy the summer long.

Thymes and other low-growing odorous plants should obtrude on the path, and the slightest touch of passing feet will occasion a waft of moorland fragrance.

I would appeal to those flower-lovers who are in possession of old-world floral treasures to propagate and distribute them assiduously so that a goodly heritage may not be lost to breeders of popular flowers. I ask them to accept fragrance as their guiding star, and urge the leisured florist to search in the remotest hamlets of Britain for that most cherished possession, almost a tradition, the well-tendered and well-loved cottage garden, for from these humble homes many fine flowers and fruits have come, and there are still more waiting for the appreciative eye of those who seek them.

The scent of flowers is a wonderful thing, and an even more wonderful gift; it was appreciated by our grandparents, and the plants diffusing such scent were tended with meticulous care. There is a well-worn saying: "Any plant will grow for him"; those of whom this is said possess that indefinable gift of knowing their plants, of anticipating their every want, and this wonderful contact between plant and human has never been more marked than between the old-world favourites of the cottage garden and those who ministered to their wants.
Ralph E. Arnold.

ROSE GARDEN.

APHIDES AND MILDEW.

A SHARP outlook should now be kept for attacks of aphides on Roses which, if allowed to increase are frequently very difficult to control; so soon as the fly is detected, the affected plants should be sprayed with an insecticide, a nicotine wash being most effective for the control of green-fly.

Where mildew was prevalent last season it is well to anticipate an attack this year by spraying with a suitable specific; one of the best sprays for mildew is liver of sulphur, used at the rate of half-an-ounce to one gallon of water, or two ounces to three gallons of water when the foliage is young and tender. A little soft soap added to the solution renders it more adhesive.

The surface of the beds should be kept well stirred with the hoe or cultivator; this not only serves the double purpose of aerating the soil and keeping down weeds, but a loose layer of soil conserves moisture and acts as a mulch during dry weather. I do not advise the use of mulching material for Rose beds at any time, as it prevents to a great extent the proper cultivation of the ground, which is so essential for successful Rose-growing. *J. C.*

RAISING HARDY PERENNIALS FROM SEEDS.

ALTHOUGH the bulk of the hardy herbaceous plants may readily be increased by means of division or even cuttings, it is an excellent plan to raise stocks of both the larger-growing herbaceous plants, as well as the dwarfer-growing subjects for the rock garden from seeds.

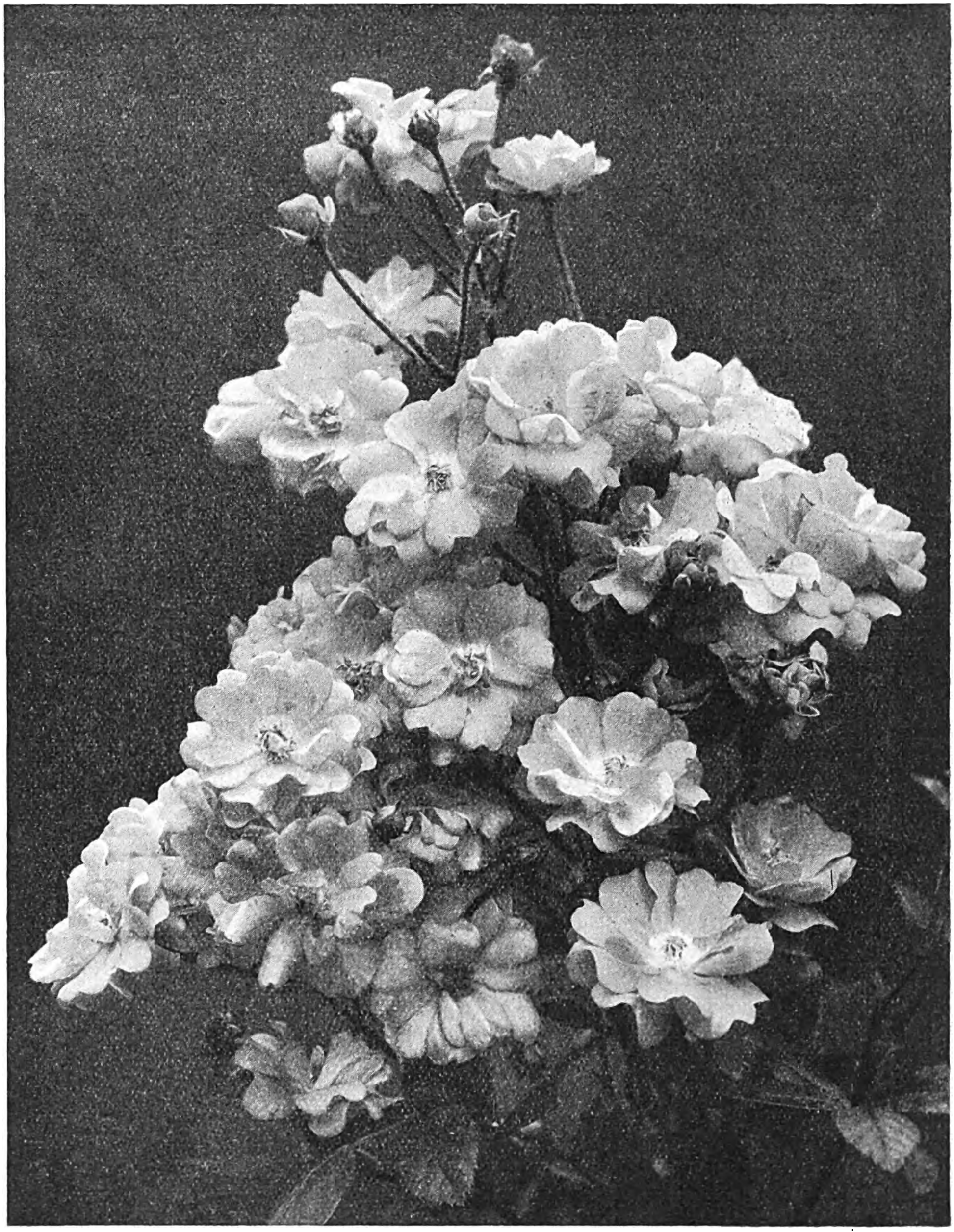


FIG. 178.—CHELSEA SHOW: ROSE GOLDEN SALMON.

This new variety was prominent in many of the collections of Roses.

Now that the bulk of propagation in connection with the summer bedding plants is over, there is more time and space for the raising of perennial plants. The seeds of most of them may, if desired, be sown in the open, but it is a great advantage if they are raised indoors, either in a cool house or in cold frames, sowing the seeds in pots or boxes according to the quantity of plants desired.

When large enough, the seedlings should be pricked off into boxes, from which they may subsequently be transferred to the nursery or reserve garden.

Many of the plants raised in this way will be ready for planting out in their permanent quarters during the autumn or following spring, but some of the slower-growing subjects will require a second season in the nursery.

Delphiniums are easily raised in this way, also many of the Campanulas, including C. lactiflora, a beautiful plant, not only for the wild garden, but also for the large herbaceous border. This species has large, fleshy roots, and should be planted in its flowering quarters when quite young. C. persicaefolia, of which there are many fine varieties, is also easily raised from seeds, as is Geum Mrs. Bradshaw.

Seeds of a variety of hardy herbaceous perennials are easily obtainable from seedsmen, and most of them are not expensive.

Seeds of many alpine plants often take a long time to germinate, and if they fail to do so the first season, the seed-pans should be left out-of-doors during the winter, exposed to the influence of frost and snow. Usually, if the seeds are viable they will germinate the following spring. *J. C.*

ROYAL HORTICULTURAL SOCIETY.

EXHIBITION AT CHELSEA.

May 25, 26, and 27.

THE Spring Show of the Royal Horticultural Society held on Wednesday, Thursday and Friday of this week, in the grounds of the Royal Hospital, Chelsea, was the largest of the series, and the quality of the exhibits generally was superb. The Show was worthy of the Society and a testimony to the skill and enterprise of British gardeners.

The major portion of the exhibits consisted of beautiful flowers and flowering plants, which filled the tents with bright colours and perfumes, but all sections of gardening were represented, almost everything used in gardens or associated with horticulture being included. The new arrangements whereby the judging was completed on the Tuesday evening, and the Show opened for a private inspection of the Fellows on the Wednesday morning met with general approval; the show was so far advanced on Tuesday afternoon that the King and Queen were enabled to make a tour of inspection, and others present on the same day included Princess Mary, Lord Lascelles, and the Duke of Connaught. On the Wednesday morning the weather was beautifully fine; before the opening of the gates large crowds had assembled and it is estimated that the attendance on the first morning exceeded all records.

With regards to the Show itself, it occupied two-and-a-half acres more ground than the previous one, giving an additional area of 8,500 square feet. This increased space allowed for wider pathways in the tents, and added greatly to the comfort of visitors. The number of exhibits was 215, compared with 194 in 1926; sundries especially were more numerous, the figures being 99 last year and 144 this. One of the most notable increases was in the exhibits of shrubs.

Although the season has been unfavourable, there were several good exhibits of Tulips and Sweet Peas, and a great wealth of all kinds of border flowers. Rhododendrons were as beautiful as ever, and there were choice collections of Roses, Carnations, Hydrangeas, Irises, Begonias and other flowers. The rock gardens reached a high standard of merit and there were many beautiful formal gardens.

The Orchids were staged in a large tent by themselves and made a notable contribution to the Show.

The two sections of the Floral Committee made an unusually large number of awards, including three First Class Certificates and twenty-nine Awards of Merit. The Orchid Committee granted four First Class Certificates and twelve Awards of Merit to novelties.

The Fruit and Vegetable Committee made no award to a novelty, but there were several exhibits of outstanding importance in this section, including magnificent collections of vegetables staged by the Hon. VICARY GIBBS and Messrs. SUTTON AND SONS respectively, and a group of pot fruit trees by Messrs. T. RIVERS AND SON.

Orchid Committee.

Sir Jeremiah Colman, Bt. (in the chair), Mr. Gurney Wilson, Mr. C. J. Lucas, Mr. H. G. Alexander, Mr. J. Cypher, Mr. R. Paterson, Mr. E. R. Ashton, Mr. S. W. Flory, Mr. W. H. Hatcher, Mr. A. Dye, Mr. T. Armstrong, Mr. John Cowan, Mr. F. K. Sander, Mr. Clive Cookson, Mr. J. E. Shill, Mr. R. G. Thwaites and Mr. Stuart H. Low.

FIRST CLASS CERTIFICATES.

Lycaste Skinneri var. Mrs. Hamilton-Smith.—From Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey. This is by far the finest form of this well-known and beautiful species; the flowers are exceptionally large and effectively coloured.

Odontioda Corregio (*Oda. Coronation* × *Oda. Vuylstekeae*).—From J. J. BOLTON, Esq., Claygate, Surrey. A beautiful variety; the plant carried a spike of six large flowers which are rose-tinted and blotched with rose-purple; the spiny crest is bright yellow.

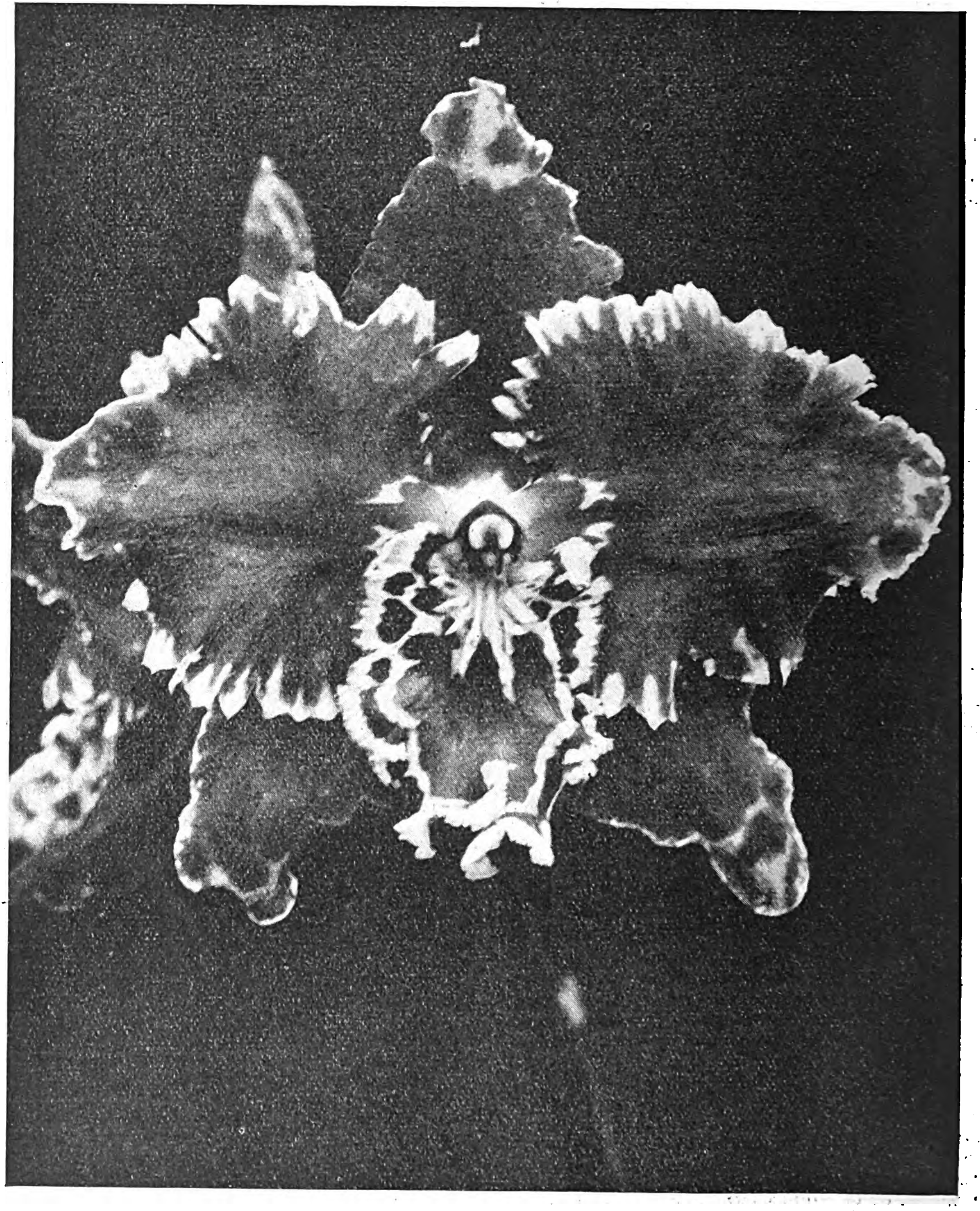


FIG. 179.—CHELSEA SHOW: ODONTOGLOSSUM IMPERATOR.
Shown by Messrs. Charlesworth & Co.

Miltonia Lucia var. Stamperland.—From ROBERT PATERSON, Esq. An elegant flower, particularly rich in its crimson colouring; the labellum is broadly developed and has a distinct blotch at the base.

Cattleya Prince Shimadzu var. superba.—From Mrs. ROBERT PATERSON. A very charming form of this well-known hybrid; the segments are prettily arranged and coloured soft rosy-mauve, and with rich purple on the lip.

AWARDS OF MERIT.

Miltonia Conqueror.—From Messrs. SANDERS, St. Albans. The spikes bore several well-formed flowers of light blush tint, with a bold and darkly coloured blotch at the base of the labellum.

Odontoglossum eximium var. Colmanii.—From Sir JEREMIAH COLMAN, Bart., Gatton Park, Surrey. A very distinct hybrid with circular blotches, derived from O. crispum Solum, and likely to improve greatly when the plant reaches maturity.

Odontonia Corona var. Rajah (*M. Warscewiczii* × *O. Harryanum*).—From Messrs. CHARLESWORTH AND Co. The branched spike bore numerous flowers of yellow ground with dark chocolate blotching; a very distinct hybrid.

Vuylstekeara Melba var. atropurpurea (*V. Brewii* × *O. Gorizia*).—From Messrs. CHARLESWORTH AND Co. A great advance in the section. The flowers are large and of uniform rose-purple.

Cymbidium Erica var. Lord Lambourne.—From Messrs. STUART LOW AND Co. The arched spike bore several charming flowers of clear canary-yellow colour; the lip has a few reddish spots.

Miltonia Sanderiana var. Chelsea.—From Messrs. BLACK AND FLORY. A very beautiful hybrid; the labellum of the rose-coloured flowers is well-covered with radiating lines of dark crimson.

Miltonia gloriosa superba.—From Messrs. COWAN AND Co. A remarkable flower, the sepals and petals of which are marked with rich purple while the labellum has a dark crimson blotch surrounded by a bright zone.

Miltonia Wm. Pitt var. Brilliantissima.—From the Executors of the late Mr. H. T. PITT. A distinct flower in which the basal blotch on the labellum is well developed.

Miltonia Kennie.—From Messrs. SANDERS. A handsome flower, prettily formed and coloured, the distinguishing feature being the immense blotch of dark maroon on the labellum.

Odontoglossum Prince Imperial.—From Messrs. J. AND A. MCBEAN. One of the finest of the blotched section; the flowers are of large size and handsomely coloured.

Brasso-Laelio-Cattleya Ursula var. magnifica.—From Messrs. H. G. ALEXANDER, LTD. The flowers are of great size, with rosy-mauve sepals and petals, and a deep purple lip.

Cattleya Jupiter (*Edith* × *Tityus*).—From Messrs. H. G. ALEXANDER, LTD. A charming flower of soft mauve colour; the lip is rich purple and with an orange throat.

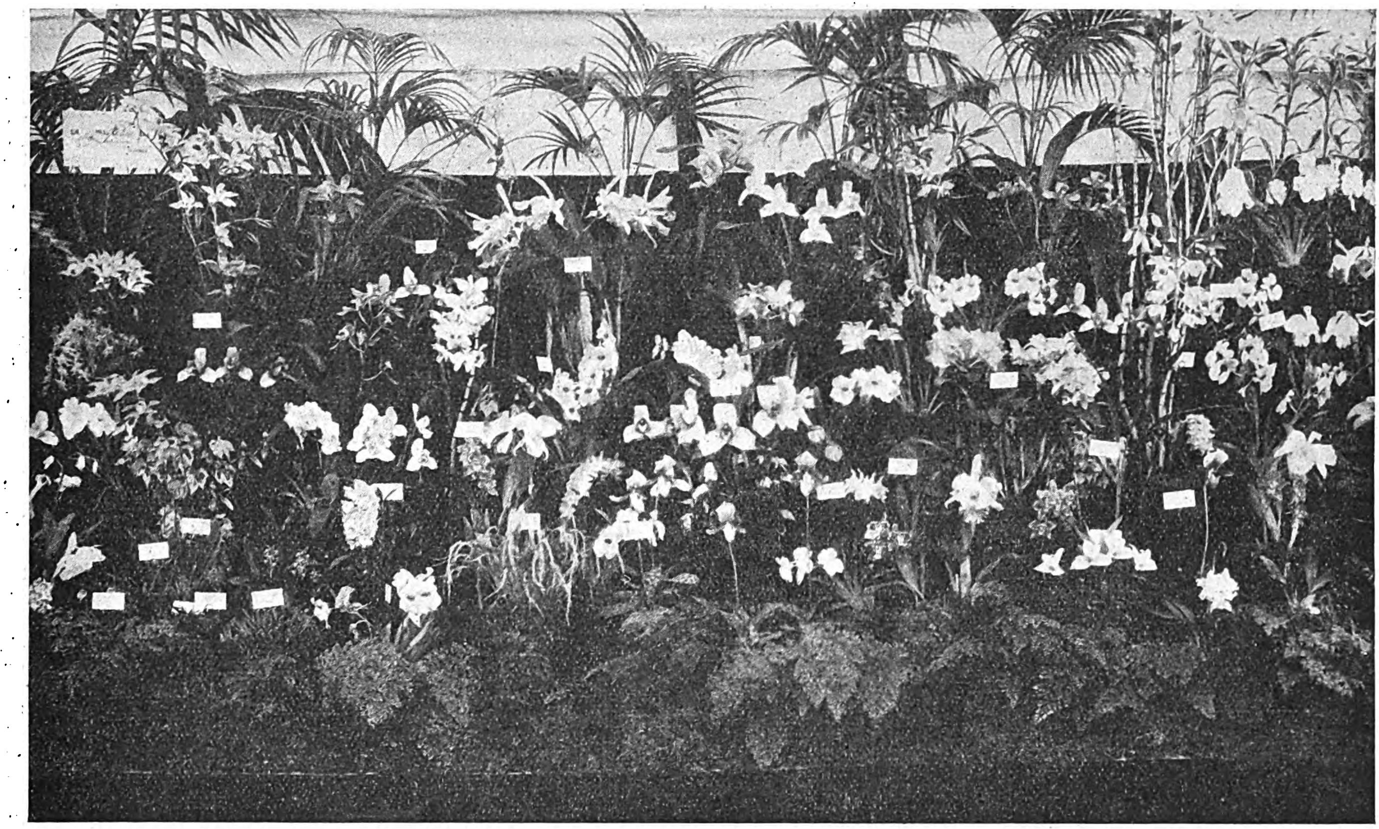


FIG. 180.—CHELSEA SHOW: GROUP OF ORCHIDS EXHIBITED BY SIR JEREMIAH COLMAN, BART.

CULTURAL COMMENDATIONS.

To Mr. S. LYNE, Orchid-grower to J. J. Bolton, Esq., Claygate, for Odontoglossum crispum var. Drussila; to W. J. B. VAN DE WEYER, Cliffe, Dorchester, for Eulophia purpureus, with a tall spike; to Mr. J. COLLIER, gardener to Sir Jeremiah Colman, Bart., for a magnificent specimen of Dendrobium Gatton Sunray; and to Mr. A. F. BUSH, gardener to E. Sinclair, Esq., Chislehurst, Kent, for a plant of Vanda Parishii, with eleven spikes.

GROUPS.

An interesting group was shown by Sir JEREMIAH COLMAN, Bart. (gr. Mr. J. Collier), Gatton Park, Surrey (see Fig. 180), who included a very fine series of Lycaste Skinneri, varying from pure white to rose-purple, and also the rare L. locusta, with green flowers. A pretty hybrid was seen in Angulocaste Vesta, while Odontiodas were fairly well distributed. Among the Cattleyas were white varieties of C. Mendelii and Temple's variety of C. Skinneri. The centre was well filled with Cymbidiums, in front of which were placed Dendrobium acuminatum and several scarce Masdevallias. Dendrobium Gatton Sunray and D. densiflorum were both attractive. A fine effect was produced by large plants of Brasso-Laelio Caligula and B.-L.-C. Veitchii, the latter with eight immense flowers. Numerous Cypripediums of the emerald green section were tastefully placed, while at other points were the bright golden flowers of Odontoglossum Wilckeanum Colmanii, and the richly-coloured blooms of the new Miltonia hybrids.

From the Executors of the late H. T. PITT, Esq. (gr. Mr. Thurgood) came a pretty group, mainly composed of Miltonia vexillaria, among which were arranged some fine Cattleya hybrids. Well-cultivated specimens of Anguloa Clowesii, with cradle-like flowers, and the handsome Maxillaria Sanderiana came in for appreciation. Renanthera Imschootiana, with a panicle of red flowers, Odontonia Nubia, as well as the pretty Epidendrum Endresii, added to the general effect.

J. J. JOICEY, Esq. (gr. Mr. J. Mackay) The Hill, Witley, had an interesting exhibit containing Dendrobium cariniferum, D. transparens, and two good specimens of D. atroviolaceum. Rarities were staged in Aerides Houlletianum and Cryptochilus sanguineas, and pretty flowers in Cypripedium Phipps, ivory-white, and Cattleya Mendelii var. White Queen. Bulbophyllum macranthum and Pleurothallis Birchenalii were also included. The popular Laelio-Cattleya Canhamiana was seen in varieties with white sepals and petals, and in L.-C. Padova, the labellum is rich crimson.

One of the corner positions was occupied by Messrs. J. AND A. MCBEAN, Cooksbridge, Lewes, with a choice selection of hybrids. Various Cymbidiums and Miltonias of the vexillaria section were most effective, while Cattleya Enid alba, C. citrina, and the red-flowered Masdevallia Veitchiana stood out boldly. Odontoglossums were best seen in O. Prince Imperial, with immense flowers; in O. crispum var. Cecilia, and in the shrubbery variety of O. illustrissimum. Two finely-grown specimens of Coelogyne Stanny (burfordiensis) were prominent objects. Of the many Odontiodas, the finest seemed to be Oda. Lawrecler.

Messrs. COWAN AND Co., Southgate, filled the central area of their group with Odontiodas with good effect. Odontoglossum triumphans var. L. Crawshay was in fine form, as also were several varieties of Cattleya Wolstersiana and C. Tityus. Dendrobium Devonianum made a fine show with a multitude of blooms, while D. Victoriae Reginae bore flowers of slate-blue colour. Coelogyne Mooreana, with an erect spike of white flowers, and Selenipedium grande, were much noticed, while Laelio-Cattleya Aphrodite and L.-C. Hyeana again proved useful. Mention may also be made of some choice Odontiodas and the rare Cattleya intermedia var. Aquinii.

Messrs. STUART LOW AND Co., Jarvisbrook, Sussex, put up an interesting exhibit, comprising the new Odontioda Canberra, with large purplish flowers; Laelio-Cattleya Locarno var. Eileen rose-purple, with deep crimson lip, L.-C. Cantab var. Atlas, roundly formed, and Odontocidium Edwardatum. Among the species were Cymbidium Devonianum, with three spikes, Maxillaria tenuifolia, the red-flowering Renanthera Imschootiana, and Anguloa Clowesii. A distinct Cymbidium was staged in C. Erica var. Lord Lambourne, and an interesting hybrid in Rolfeara Charm, with flowers of apricot-yellow.

Messrs. Sanders, St. Albans, occupied a corner position with a showy exhibit of Miltonia vexillaria, an outstanding variety being named Conqueror, with a heavy blotch on the base of the labellum. Phalaenopsis Rimestadiana, with white, moth-like blooms, the rare Paphinia cristata, Bifrenaria pubigera, and the quaint Nanodes Medusae may be mentioned. A remarkable Orchid was seen in a well-flowered specimen of Bulbophyllum macrobulbon, and another in Cymbidium Huttonii, with a couple of pendulous spikes. Aerides Fieldingii and A. falcatum var. expansum, both uncommon, came in for due appreciation. Of the many Odontiodas, one named Queen Mary had a fine inflorescence, while in Oncidioda Mauricei, the white lip stood strongly against the deep rose sepals and petals.

Messrs. Charlesworth and Co., Haywards Heath, filled the opposite corner with a very attractive exhibit, in which the central part was filled with home-raised forms of Odontoglossum crispum, one particularly fine variety having a spike of eighteen large flowers. Probably the best of the hybrids was Odontoglossum Imperator (see Fig. 179) of wonderful formation and rich purple colour. A pleasing contrast was made by the golden flowers of O. Wilckeanum aureum. Masses of Laelio-Cattleya G. S. Ball, bright orange, and of L.-C. Hyeana, dark purple, stood out well. An interesting hybrid was staged in Vuylstekeara Melba, with large flowers of rose-purple. Another part of this group was made up with various Cypripediums, Epidendrum gattonense, and the showy Coelogyne Stanny (burfordiensis).

Messrs. Black and Flory, Slough, had an attractive group of Miltonia vexillaria hybrids, the best being Kennie, with ray-like markings; Wm. Pitt, richly coloured; and some well-flowered specimens of Doris. Cattleyas were the other outstanding feature, and included distinct varieties of Dr. G. G. MacDonald, well-coloured forms of C. Tityus, the pleasing C. Cowaniae alba, and C. Prince Shimadzu. One of the most interesting plants was the new Burrageara Windsor, while two other novelties were staged in Miltonia Era (Doris × Lena), and Laelio-Cattleya H. B. Turner.

Messrs. Sutton Bros., Hassocks, exhibited some attractive plants in their group, such as Dendrobium thyrsiflorum, with masses of yellow blooms; Laelio-Cattleya Fascinator; Odontiodas Grisell, Brasso-Cattleya Digbyana Mossiae, and Cymbidium Ceres. Species were represented by Pholidota imbricata, Scuticaria Hadwenii and Ophrys aranifera. Messrs. Mansell and Hatcher, Ltd., Rawdon, Yorks., had an attractive group composed of numerous seedlings of Miltonia vexillaria, some very promising, with various Odontiodas and Odontoglossums. Other plants of interest were Vanda Bensonii, Zygopetalum crinitum, Anguloa Clowesii and Saccolabium Blumei. The centre of the group was tastefully filled with Odontoglossums and Odontiodas.

Messrs. H. G. Alexander, Ltd., Westonbirt, Tetbury, Gloucestershire, put up a fine show in one of the corner positions. Noteworthy plants were the Westonbirt variety of Cattleya Tityus, with a spike of five flowers; Cattleya Enid var. Gloriosa, and several fine forms of C. Mossiae, a finely grown specimen of Miltonia vexillaria var. Snowflake, with many snow-white flowers; and M. Hyeana var. Venus evoked much praise, as also did the large examples of Brasso-Laelio-Cattleya Ajax. Cymbidiums were well represented, as also were Cypripediums, for the time of year. Among the species we noticed the tall Dendrobium Dalhousieanum, and the dwarf Phalaenopsis Lueddemanniana.

Messrs. Cypher and Sons, Cheltenham, arranged a varied exhibit of species and hybrids. Among the former were Cattleya Mossiae Wageneri, a specimen plant of Brassia verrucosa, Renanthera Imschootiana, and the yellow-flowering Dendrobium chrysotoxum. Hybrids were best seen in the popular Laelio-Cattleya Dominiana, with five flowers on the spike, Sophro-Cattleya Hector, of reddish tint, many Odontoglossums, both plain and blotched, as well as a selection of the decorative Odontiodas.

Mr. Harry Dixon, Wandsworth Common, had an attractive exhibit in which one end was filled with Cypripedium species and hybrids, including C. Curtisii exquisitum, C. callosum and C. Maudiae. In the centre was a fine plant of Odontioda Gladys, with no fewer than forty-three flowers on the spike. Other notable Orchids were Dendrobium thyrsiflorum, with seven racemes, the pretty D. japonicum, Maxillaria tenuifolia, and fine varieties of Cattleya Tityus. Selenipedium Dominianum and S. macrochilum were also staged.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. Chas. E. Pearson, Mr. H. R. Darlington, Mr. W. B. Gingell, Mr. J. T. West, Mr. D. B. Crane, Mr. James B. Riding, Mr. J. M. Bridgeford, Mr. M. C. Allwood, Mr. Donald Allan, Mr. H. J. Jones, Mr. W. H. Page, Mrs. Ethel M. Wightman, Mrs. Helen Lindsay Smith, Mr. Wm. Howe, Mr. Geo. Churcher, Mr. Arthur Turner, Lady Beatrix Stanley and Mr. A. E. Vasey.

Section B.—Mr. W. J. Bean (in the chair,) Mr. F. G. Preston, Mr. Amos Perry, Mr. G. Yeld, Mr. W. G. Baker, Mr. Geo. Harrow, Mr. J. Reuthe, Mr. T. Hay, Mr. Hiatt C. Baker, Mr. L. R. Russell, Mr. Mark Fenwick, Mr. Chas. T. Musgrave, Mr. E. H. Wilding, Mr. C. W. Williams, Mr. R. D. Trotter, Sir William Lawrence, Bt., Hon. Henry D. McLaren, Mr. Reginald Cory, Mr. W. B. Cranfield, Mr. A. Bedford, Mr. F. C. Stern, Mr. Eric M. Marsden-Jones, Mr. E. A. Bowles, Mr. R. C. Notcutt, Mr. Chas. Lucas, Mr. A. W. Exell and N. K. Gould, Secretary.

First Class Certificates.

Azalea John Jennings.—This appears to be one of the brilliant Knap Hill hybrids. It makes a neat truss of flowers, rather larger than those of the Ghent Azalea, and of vivid ruby crimson colour. Shown by Lionel de Rothschild, Esq. (gr. Mr. A. Bedford), Exbury, Hants.

Cornus florida var. rubra.—Although not generally hardy, Cornus florida thrives in various parts of this country, and the very beautiful variety rubra appears to be more suitable for our climate than the type shrub. It was first introduced by Messrs Parsons, of Flushing, New York. It differs from the type in the large bracts being lined and flushed with bright pink. The figure in *Bot. Mag.*, t. 8,315, shows the variety to rather better advantage than did the sprays now exhibited. Shown by Lionel de Rothschild, Esq.

Daphne aurantiaca.—This beautiful little shrub was introduced by Forrest and raised in the Royal Botanic Gardens at Edinburgh, where it thrives out-of-doors. It is a sturdy evergreen shrub bearing small, stiff, ovate leaves, about three-quarters-of-an-inch long. The flowers, which have fairly long tubes, are borne in pairs in the axils of the leaves, and are of bright yellow colour. They have a slight Daphne perfume. Shown by Mr. A. K. Bulley.

Awards of Merit.

Lewisia rediviva Vancouver variety.—On account of its fleshy rootstock, this Lewisia has great powers of recuperation; dried specimens have been known to throw up fresh leaves after having been dormant for over two years. The plant makes a tuft of narrow, succulent leaves, from which spring short-stemmed, pink flowers, nearly three inches across and of Cactus-like appearance. The whole plant was not more than three inches in height. There is a good illustration of the type plant in *Bot. Mag.*, t. 5,395. Shown by Mr. C. van Tubergen.

Primula microdonta var. alpicola (see Fig. 181).—This is a handsome Chinese Primrose. The entire, ovate leaves have long petioles. The stout scape is about two feet in height and bears plenty of lemon-yellow flowers on fairly long, erect stalks which curve close to the calyx so that all the flowers face nearly at right angles. The stems are slightly mealy. Shown by Messrs. Oliver and Hunter.

Carnation G. K. Phillips.—A large, shapely perpetual-flowering variety of rich crimson colour and delicious perfume. Shown by Messrs. Hewitts, Ltd.

Carnation Evelyn.—A well-formed perpetual-flowering Carnation of medium size and slight fragrance. The petals are heavily stippled with bright pink, and the white ground shows occasionally in the form of white lines and flakes. Shown by Messrs. C. Engelmann, Ltd.

Paeonia Moutan Hiatt C. Baker.—This Tree Paeony bears rather small, rounded orange-stained flowers. Shown by the Almondsbury Gardens.

Rhodohypoxis Bauri.—The generic name does not appear in the *Index kewensis* so must be considered provisional. The plant is very dwarf and has a tuft of hairy, acaulescent, lanceolate leaves, from which spring single, dull white flowers, which have somewhat the appearance of blind Primroses—the corolla segments meet in the centre of the flower.

R. rubella.—This is similar to the foregoing, except that the flowers are rose-coloured. Both were shown by Mrs. Garnett-Botfield, Albrighton.

Weinmannia trichosperma.—This uncommon shrub usually requires the protection of a cool greenhouse. The pinnate, angular, flattened leaves give a Fern-like appearance to the foliage. The terminal racemes are studded with small flowers, which have pink-tipped anthers. Shown by G. W. E. Loder, Esq., Ardingly, Sussex.

Aponogeton distachyon aldenhamense.—This is merely a coarse variety of the deliciously-scented Cape Pond Weed, or Winter Hawthorn, as this uncommon aquatic is often termed. Shown by the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree, Herts.

Clerodendron fragrans.—The chief value in this warm greenhouse plant lies in the rich fragrance of its flowers, but we suspect it is rarely grown outside Botanic Gardens. The plants have very large, sub-cordate pubescent leaves and a squat, terminal corymb of white flowers. Shown by Sir William Lawrence, Bt., Burford, Dorking.

Hippeastrum pratense.—This Chilean bulbous plant, which was introduced in 1840, was shown as Habranthus pratensis. The brilliant scarlet flowers are borne in umbels on stems about a foot high. Shown by Mr. R. C. Notcutt.

Pitcairnea aphelandraeflora.—An attractive dwarf Bromeliad introduced from Para in 1867. The lanceolate leaves are soft in texture, dark green, and are lightly toothed towards the ends. There were eight racemes of bright scarlet flowers. Shown by Sir William Lawrence, Bt.

Cercis racemosa.—Like the better-known Cercis Siliquastrum, this species bears its flowers on the branches, but they are in pendulous racemes. The individual flowers are rather smaller and of flesh-pink colour. The young shoots and flower buds are downy. It is a beautiful little deciduous tree, growing about twenty feet in height and was introduced from Hupeh, China, in 1907. Shown by Lionel de Rothschild, Esq.

Magnolia Nicholsoniana.—This deciduous species, from China, grows about twenty feet high and flowers when quite young. The ovate-oblong leaves have fine hairs on their petioles and undersides of the midribs. The saucer-shaped, white flowers are fully four inches across and have purple stamens. Shown by Lady Aberconway and the Hon. Henry D. McLaren (gr. Mr. F. C. Puddle), Bodnant, North Wales.

Cytisus Lord Lambourne.—A graceful, free-flowering Broom much of C. Dallimorei type. The standards and keel are coloured primrose, and the wings are bright crimson. Shown by Messrs. C. **WATSON AND SONS, LTD.**

Azaleodendron Galloper Light.—A very handsome hardy, deciduous variety which bears good trusses of rosy-salmon flowers with crimson spots on the upper segment. Shown by **LIONEL DE ROTHSCHILD**, Esq.

Viburnum macrocephalum.—A deciduous shrub of fair size, from China. The small, ovate-oblong leaves are dark green. The bush bears large, rounded trusses of pure white, sterile flowers of Hydrangea-like appearance. Shown by **LIONEL DE ROTHSCHILD**, Esq.

Lupinus polyphyllus Countess of March.—This fine variety has tall spikes of flowers which are white at first, but later become flushed with lilac. Shown by Mr. G. R. **DOWNER.**

Hydrangea Hortensia D. B. Crane.—A large truss of substantial flowers of deep old rose colour. Shown by Mr. H. J. **JONES.**

H. Mrs. Baardsi.—A large, shapely truss of bright pink flowers.

H. Deutchland.—This variety has an immense truss of pink flowers, very lightly shaded with blue. Both were shown by Messrs. L. J. **ENDTZ AND CO.**

Carnation E. Lyall Swete.—A magnificent border Carnation. The large flowers are very shapely and of bright scarlet-crimson colour. Shown by Mr. **JAMES DOUGLAS.**

Dianthus Allwoodii Susan.—A shapely little flower of blush pink colour. There is a substantial deep crimson zone. Shown by Messrs. **ALLWOOD BROS.**

Aster alpinus Shirley.—Although only about six inches in height, this splendid variety bears bright mauve-coloured flowers, nearly three inches across. Shown by Messrs. B. **LADHAMS, LTD.**

Viola cornuta Jersey Gem.—This is an excellent variety of compact, yet spreading, habit. The flowers are unusually large for the type and of royal blue colour. Shown by Messrs. **WATKINS AND SIMPSON.**

Rose Kersbergen.—A showy Polyantha variety. It bears a shapely, conical truss of double, rich crimson flowers. Shown by Messrs. **WM. CUTBUSH AND SON.**

Begonia Mrs. A. Baldwin Bantock.—A magnificent, tuberous-rooted, double-flowered variety. The very large, perfectly-formed flowers are of rose-pink colour, shaded with orange and are prettily waved.

B. Mrs. F. Bedford.—Another splendid variety of similar type to the above. The colour is cream flushed at the back and on the margins with Apple-bossom pink. Both varieties were shown by Messrs. **BLACKMORE AND LANGDON.**

Tulip White Duchess.—A very large, Cottage Tulip. The broad segments are occasionally notched, and of creamy white colour, with green lines along the centre at the back of the segments. Shown by Messrs. **BARR AND SONS.**

Stove and Greenhouse Plants.

While there were only two exhibits of stove plants, these were wholly admirable. Messrs. **JOHN PEED AND SON** arranged a splendid collection of Caladiums which included many new varieties. The chief of these were Mr. Robert Greenfield, Leopold, Roupell Glory, Streatham Pride, Stromboli and Fiery Cross, all of semi-transparent loveliness. Amongst the older varieties we especially noted Marquis of Camden, John Peed, Red Ensign, Henry Lovat and John Burns. The level of these exceedingly well-grown Caladiums was broken by excellent plants of Phoenix Roebelinii and Cordyline (Dracaena), Victoria. Along the front, Messrs. **JOHN PEED AND SON** arranged a very large collection of the splendid Streptocarpus which received such great admiration at previous shows in Vincent Square, and many equally well-grown plants of an admirable strain of Gloxinia. They also showed their vigorous, double-flowered, velvety purple Petunia, Mrs. John Campbell, and margined the group with Coleus Wittonii, Selaginellas and Asparagus plumosus nana.

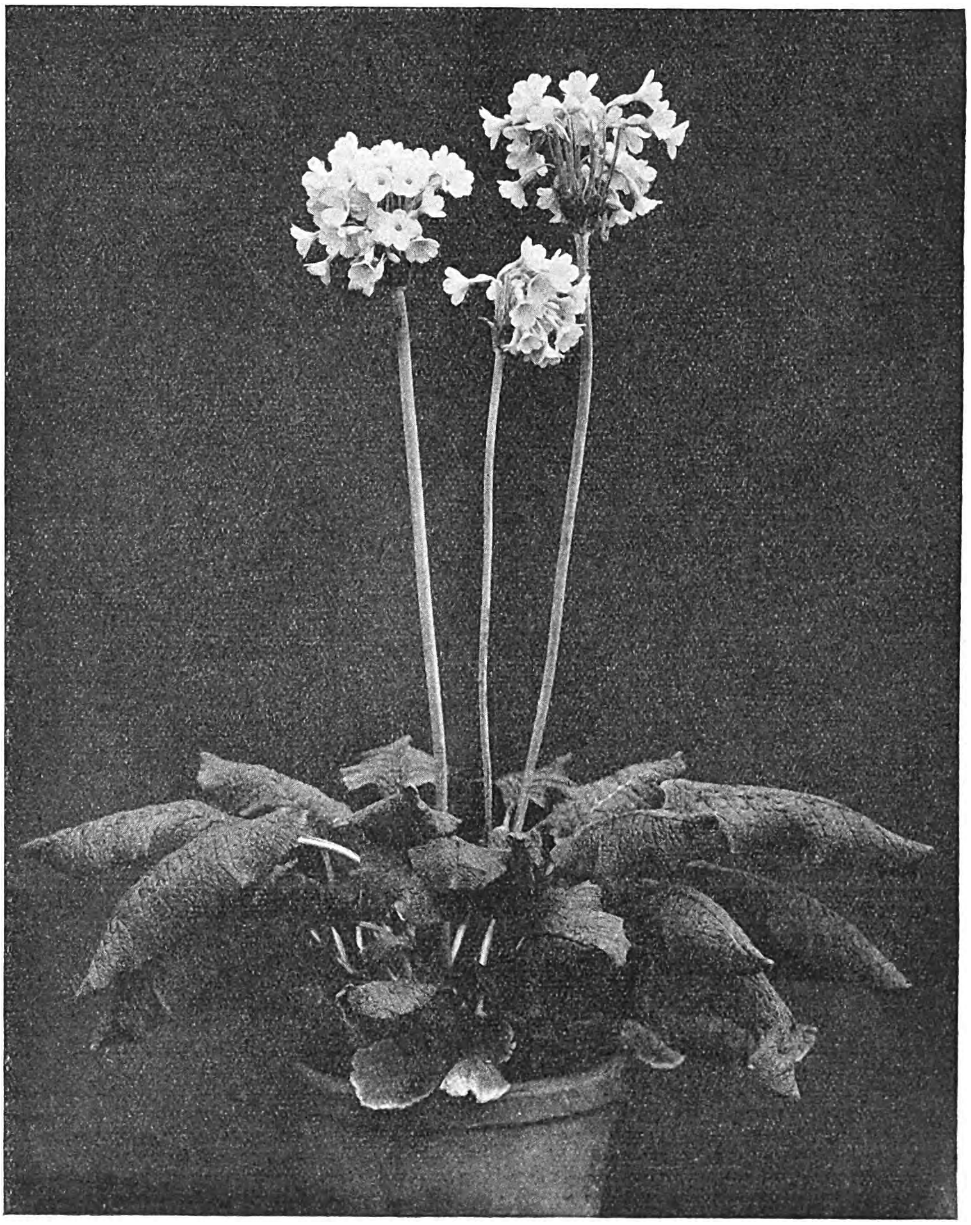


FIG. 181.—CHELSEA SHOW: PRIMULA MICRODONTA VAR. ALPICOLA.

(see p. 376).

Nearby, Messrs. **L. R. RUSSELL, LTD.**, displayed a magnificent collection of miscellaneous stove plants. Caladiums of good quality were an important feature, as also were many good varieties of Codiaeum (Croton) and Cordyline (Draceana). Vivid colour was provided by the scarlet spathes of Anthurium Scherzerianum Lord Lambourne and A. S. Russelliana. Of special note amongst the foliage plants was a pan of the charming little Anoectochilus petiola. Flowering plants included Clerodendron Balfouri, Franciseeas, Medinilla magnifica and various Bromeliads bearing brilliant bracts. Adjoining these stove plants was a most pleasant group of Tree Ferns, largely of Dicksonia antartica, with an occasional Cyathea dealbata rising high above more lowly Ferns and Bromeliads.

Hippeastrums were especially well shown by **LADY ABERCONWAY** and the Hon **HENRY MCLAREN** (gr. Mr. F. C. Puddle), Bodnant, North Wales. These excellent plants were delightfully arranged in a variety of splendid colours, and illustrated a desirable strain as well as first-rate cultivation. In a row of Streptocarpus which was arranged along the front of this exhibit, there were many good specimens, principally of purplish shades, which were also worthy of admiration.

The only exhibit of succulent plants was a comprehensive collection arranged by Mr. **SYDNEY SMITH.** This included well-grown plants of Mamillaria Schiedeana, M. coronaria, M. micromeris, Echinocactus Grusonii, E. pilosus, E. chrysanthus, Cereus (Pilocereus) senilis, Echinopsis, Euphorbias, Echeverias and Cotyledons.

Hydrangeas were extensively shown and in superb quality. The three exhibits, solely of Hydrangeas, splendidly illustrated different styles of arrangement. Mr. H. J. **JONES** favoured the moderately level method, broken by a delightful centre of vividly coloured plants of Parzival and selections, at the four corners, of his charming seedlings, while specimen plants were disposed in approved places. His principal varieties included Le Cygne, white; Rubis, rich pink with bronzy-green centres; Elmar, frilled pink; Thos. Stevenson, a large truss of soft pink flowers; Blue Prince, of hazy blue shading over pink ground; Peer Gynt, of Geranium pink colouring; and Heiderosee, a very large truss of medium pink colour.

Nearby, **BARON BRUNO SCHRÖDER** (gr. Mr. E. J. Henderson), The Dell, Egham, displayed a handsome bank of well-grown Hydrangeas, with occasional raised vases of selected specimens which made an effective display. Amongst the many varieties were Parzival, Marèchal Foch, crimped, pink; Goliath, an immense truss; Madame Vonen, pink flushed with mauve; Madame Moulliere, with a violet eye; and Hydrangea Maresii.

At the far end of the same tent Mr. Philip Ladds had a most delightfully arranged group of Hydrangeas. We understood that Mr. H. Jolis, Managing Director of Messrs. Silvesters, was responsible for the arrangement, and that the exhibit was intended to follow the lines of the recent displays of the British Florists' Federation in illustrating the best varieties grown for market sale. As in the other collections, the variety Parzival was splendidly shown, and this filled a large central basket. Other ornamental baskets contained plants of such varieties as Madame Moulliere, Madame Truffaut and Madame A. Riverain, blue; and Madame Chautard, pale pink. Hydrangeas were also shown by many other exhibitors in association with various plants.

On this occasion, Messrs. Sutton and Sons confined their exhibit to a display of Salpiglossis (Fig. 182). Thirty-six distinct varieties were represented, and these were arranged in a series of bold, undulating groups in the centre of No. 1 Tent. This most comprehensive and best collection of Salpiglossis that has ever been shown, was most fascinating in the charming and delightful colourings of the flowers. Every possible shade and combination of colours were to be seen, but those which seemed to be the most popular were Velvet Red, of intense velvety colouring, the association of Heliotrope, crimson and gold, the self yellow and the rosy-crimson. But there were many others equally delightful in the intensity of their colours and markings, while every plant was a perfect example of the highest cultural skill.

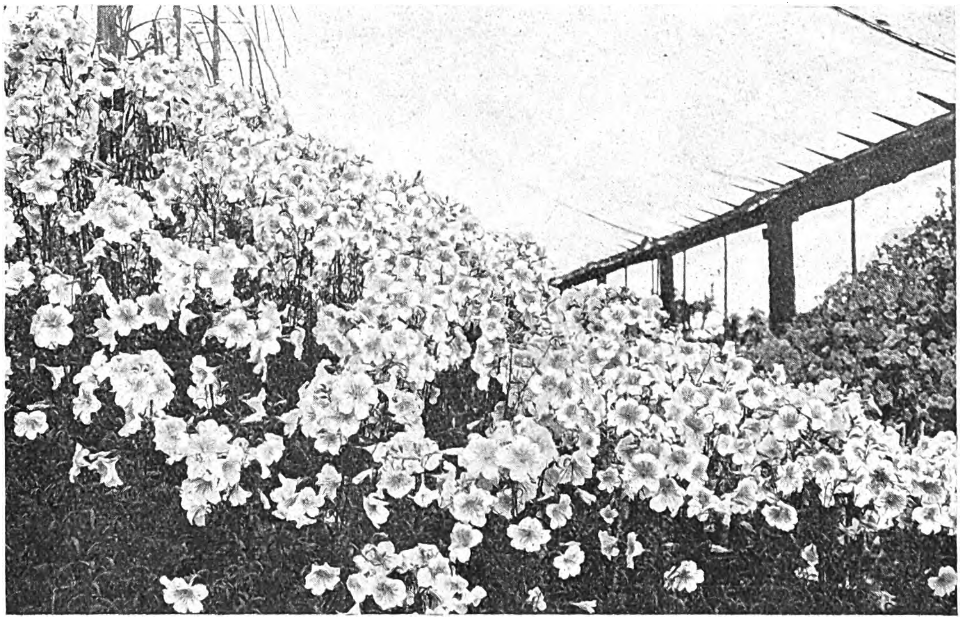


FIG. 182—CHELSEA SHOW: A CORNER OF MESSRS. SUTTON AND SON'S GOLD MEDAL GROUP OF SALPIGLOSSIS.

At the Embankment end of the tent, Messrs. J. Carter and Co. had a series of three very charming groups of greenhouse plants linked up with arches of Sweet Peas. In the larger, middle group, they had bold masses of Clarkia Brilliant Princess, Rehmannia angulata and Schizanthus var. Pink Shade merging into smaller groups of Petunia Rose Queen, Gloxinias and Begonias of good strains, and the whole edged with velvety grass and a row of an Ageratum of graceful habit. In the secondary groups were displayed Irises, Salpiglossis, Cinerarias and Calceolarias.

An extensive exhibit, arranged by Messrs. Webb and Sons, contained generous batches of well-flowered greenhouse plants. In the background there were tall plants of Clarkia, of rich salmon colouring; Cineraria stellata varieties and Salpiglossis of considerable merit. These gave way to dwarfer, but equally meritorious plants of large-flowered Calceolarias, Nemesias in many delightful shades of colour; Statice palmata, Primula obconica grandiflora, of great excellence; and dwarf Cactus Cinerarias, in a great range of colours.

A well disposed exhibit of Calceolaria integrifolia and small-flowered hybrids of great beauty, was made by Mrs. Sheppee (gr. Mr. W. Limmer), Holly Spring, Bracknell, and Mrs. Denny (gr. Mr. Thrower), Horwood House, Bucks., had a tasteful arrangement of Calceolaria integrifolia and Statice profusa.

The Studley Horticultural College exhibit was composed of Clarkia elegans, Rehmannia angulata, with a few plants of exceptionally bright colour; Statice Suworowii and Hydrangeas. The central place was given to an admirable collection of Brompton Stocks. The group, which was edged with Isolepsis gracilis, was arranged with skill and taste.

A magnificent collection of tuberous-rooted Begonias was arranged on the staging by Messrs. Blackmore and Langdon. On the present occasion it seemed that these well-known growers excelled even themselves in the excellence of their plants. The flowers, which in the main part of this very imposing exhibit were double, were immense in size, but very shapely and of many beautiful shades of colour. The chief were Lord Lambourne, orange shades; Hilda Langdon, shell pink; Brian Langdon, deep rose-pink; Peace, cream; Sidney Robinson, orange; Betty Hampton, rosy salmon; Mrs. Peter Blair, white, and Grand Monarch, rich, deep crimson. Over these superb plants were suspended baskets of equally meritorious plants of pendulous habit. There were Mollie, blush; Lena, red; Mrs. Bilkey, orange, and Corallina, pale coral.

Zonal Pelargoniums, as greenhouse plants, seem to have lost favour with gardeners during past years, so that extensive exhibits are not now looked for, but Mr. W. A. R. Clifton illustrated, in his exhibit of trusses of many varieties, their decorative value. The central position was given to several vases of a new variety, Nouvelle, which bears large trusses of orange-coloured flowers which have a white eye. Chief amongst the older varieties were Mars, of rich colouring; Venus, Janet Scott and Sensation. Besides these he had a grand selection of double-flowered varieties.

Roses.

A large group, arranged by Messrs. Chaplin Bros., provided a mass of glorious colouring. The side wall of the marquee was hidden by profusely-flowered Polyantha varieties, such as Dorothy Perkins, Hiawatha, Excelsa, and Paul's Scarlet Climber, while along the centre of this large group there were tall standards of similar varieties rising above excellent plants of Hortulanus Budde, Mabel Morse, Bessie Chaplin, Mrs. Henry Bowles, Betty Hulton, Lady Hillingdon and many other valuable Roses. Below these tall plants was massed a groundwork of dwarf plants of Scarlet Leader, Annie Miller, Susanne Müller, Superba and Girlie, behind the front rows of John Henry, Souvenir de Claudius Pernet, Mrs. Atlee, Vera, Fascination, Shot Silk and Mrs. Tresham Gilbey.

On a large ground space, Mr. Elisha J. Hicks had an attractive group of Roses in pots. There were tall standards of Mary Hicks, Orange King, Shalimar and other free-flowering sorts rising above dwarfer plants of Golden Salmon (Fig. 178) Dainty Bess, Dorothy Dix, Paul's Scarlet Climber, Souvenir de Claudius Pernet, Angele Pernet and many other good garden Roses.

A large corner space was attractively filled by Messrs. Wm. Cutbush and Son with a graceful group of Polyantha Roses and Hydrangeas. The Roses included floriferous plants of Kersbergen, crimson; Frank Leddy, bright pink; Golden Salmon (Fig. 178), Salmonea, Mary Casant, pale salmon; Scarlet Leader and La Reine Elizabeth, crimson. The chief Hydrangeas, which were arranged with well-coloured Japanese Maples, were Helge, Lorley, Marechal Foch and Parzival.

Their recent H.T. variety, Capt. S. Harvey Cant, was represented by Messrs. Frank Cant and Co., with several fine plants bearing large pink flowers. There was also a goodly batch of Lord Lambourne and Mrs. Henry Bowles of the same type, while a profusion of bloom was provided by Mrs. Anthony Kluis, a showy Polyantha variety, and Kirsten Poulsen, a single rose-coloured variety, which lasts for a considerable time.

On the staging, Messrs. B. R. Cant and Sons displayed good examples of Padré, Mrs. Beatty, Sovereign, Souvenir de Claudius Pernet, Hilda, a deep rose-pink H.T., Margaret Spaull, of soft salmon shading; Phoebe, lemon-yellow; Lady Wakefield, orange-salmon shades, and Cecil, a rich yellow. Mr. George Prince had floriferous sprays of the yellow Banksian Rose, and also showed typical examples of Golden Salmon and Rosa Hugonis.

A good selection of standard varieties staged by Messrs. E. Paul and Co., included Ophelia, Molly Sharman Crawford, Mrs. Aaron Ward, Madame Abel Chatenay, America, Hoosier Beauty, Covent Garden, Los Angeles and Colonel Oswald Fitzgerald. Free-flowering Roses were displayed by Mr. J. H. Pemberton, who had good specimens of Ideal, Chatillon Rose, Echo, Golden Salmon, Corry Koster and Edith Cavell.

The chief feature of Mr. Walter Easlea's exhibit was his variety Thelma, which was awarded the Cory Cup last year; this was represented by many large plants. He also showed Amami, a new H.T.; W. A. Bilney, a pink flushed H.T.; Thora, M. A. Kluis, a dwarf Polyantha, and Orange King.

Carnations and Pinks.

Several growers of Carnations set up imposing collections which contained an immense number of fresh and beautiful flowers. Messrs. C. Engelmann, Ltd., placed their flowers in a series of tall pillars, which made a most effective display. In addition to several unnamed seedlings of considerable value, they had large quantities of Nigger, Saffron, White Enchantress, White Wonder, Red Laddie, Dainty, a pretty Fancy variety; Lady Northcliffe, Spectrum and Aviator.

The collection of Messrs. Allwood Bros. was arranged on the staging in graceful undulations, surmounted by hanging baskets filled with a generous profusion of flowers. Their principal varieties were George Allwood, Spectrum, Velvet, a new Fancy variety of rich red colour with crimson stripes; Master Michael

Stoup, Butterfly, a fragrant Fancy with red flakes on a white ground; Eldora, white ground Fancy which they consider to be the most fragrant of all greenhouse Fancy Carnations; Red Laddie, Shot Silk, a red and crimson Fancy, and a selected strain of Mary Allwood. On a ground space near by, Messrs. Allwood had a garden of Border varieties and Dianthus Allwoodii which was also very effective. The Border sorts included Lord Stern, yellow Fancy; Lieut. E. Shackleton, Grenadier, scarlet; and Skirmisher, yellow ground Fancy. Chief amongst the Dianthus were Arthur, Peggy, Fred and Phoebe. One corner was devoted to a good selection of alpine Pinks.

In their collection, Messrs. Keith Luxford and Co. displayed goodly vases of such perpetual-flowering Carnations as Topsy, Tarzan, Saffron, Circe, Sheila Greer and Mrs. Hamilton Fellowes. Mr. A. F. Dutton staged several large vases filled with his new rich crimson and fragrant variety, Mrs. A. J. Cobb.

An extensive collection of Border Carnations with some Auriculas was displayed by Mr. James Douglas. The chief Carnations were Winsome Clove, Cleopatra, Mrs. Audrey Campbell, Ravenswood, Fair Ellen, Bookham Rose, Princess Mary, Bookham White, Steerforth, Red Gauntlet and Rhoderic Dhu.

In a collection of his admirable garden Pinks, Mr. C. H. Herbert included a good selection of new varieties of great beauty. The chief of these were Queen Mary, deep blush with crimson zone; Conquest, ruby crimson; Majestic, a large deep rose-pink flower; Novelty, a shapely crimson lake bloom; Princess Elizabeth, rose-pink; Model, the most perfectly formed of all Border Pinks; Fire King, vivid scarlet; Negress, a large, deep crimson flower; Mrs. Herbert, a soft pink with a crimson zone, and Bridesmaid, a lovely soft salmon-pink. Messrs. Isaac House and Son showed a large quantity of a free-flowering Border Pink named White Ladies.

Ferns.

There was only one collection of stove and greenhouse Ferns and this was of comparatively small plants arranged by Messrs. Ellisons. In the centre there was a goodly specimen of Platycerium Veitchii. The larger Ferns included Polypodium Mandaianum, Blechnum granodense and Davallia ornata, while towards the front there were dainty little plants of Pteris tricolor, Gymnogramme Alstonii, Pellaea ternifolia, and Doodia superba multifida.

A large collection of his well-known hardy Ferns was displayed with German Irises by Mr. Amos Perry. The Royal Fern, Osmunda regalis, was represented by several excellent specimens. Other sorts of great merit were Osmunda regalis Phillips, Athyrium laciniatum, A. ramulosum, A. ff. cristatum Elworthii, A. ff. plumosum, Lastrea ramosa, Scolopendrium nobile and Struthiopteris germanica.

Irises.

The groups of Bearded Irises have become one of the features of Chelsea Show and they again formed the centre of attraction for the many lovers of these flowers which have been so infinitely improved in recent years.

Messrs. R. Wallace and Co., Ltd., showed a group rich in newer varieties, Souvenir de Madame Gaudichau, Franklin Beynon, Miranda, with fine spikes of the better-known Alcazar, Archeveque, etc.

Messrs. Barr and Sons staged a varied collection of such better standard varieties as Sarpedon, Alcazar, Isoline, Princess of Wales, and forms of I. sibirica with an edging of Achillea, Thrift and Violas.

Irises were also used with prominence by Messrs. Waterer, Son and Crisp in their group of herbaceous plants, where we noted Souvenir de Madame Gaudichau, Shekinah, Magnifica, Lord of June, etc., and by Mr. Amos Perry in association with his hardy Ferns. Here was included a very delightful little batch of hybrids between I. bracteata, I. Watsoniana and I. tenax. Striking bearded varieties of special value were Mary Gibson, light rose-bronze; Mrs. Marion Cran, purplish pink; Mrs. H. F. Bowles, bronze and maroon; Duke of York, pale mauve blue; Mestor, deepest violet; the well-known Magnifica and White Queen.

A very welcome exhibit came from Mrs. W. R. Dykes, who showed a batch of the finer seedlings raised by the late Mr. Dykes. Among the self-coloured blues were Goldcrest, Venetia, Sapphire, Aphrodite, tall purplish rose; Moonlight, slaty white; Amber, a good yellow; and Lustre, a red purple self were also fine. The pure yellow Moraea spathacea, finely grown, added a vivid patch of pure yellow.

The Orpington Nurseries staged a large semi-circular bank of good forms. Iris colours are not easily judged under canvas, but the more striking varieties included the immense purple Mauna Loa, the reddish plum shades of Evadne and Seminole, Argynnis, bronze and brown, Aphrodite, self purplish rose, Athene and Queen Mary, white, with the beautiful self blue of Wedgwood.

The finest collection of Irises in the Show both from the point of view of quality and variety was that arranged by Messrs. Geo. Bunyard and Co. The lifted plants showed extraordinarily clean, vigorous growth and while Lilies and Eulalia were used to lighten the decorative arrangement there could be no finer foil to the flowers than the Iris foliage itself. The advances made in recent years were admirably shown by the best varieties from American and French as well as British raisers. Some of the noblest flowers showed the Dominion parentage. Among the deep purples Duke of Bedford Pioneer, Centurion and Tenebrae were outstanding. Ambassadeur, Souvenir de Madame Gaudichau, Lent A. Williamson, Billia, Shekinah, Mrs. Marion Cran and Harmony were a few other varieties shown in fine condition.

Sweet Peas.

Messrs. Dobbie and Co. showed a unique collection of sixty varieties, exhibiting magnificent quality and cultivation. Perhaps the most striking sort was Prince of Orange, a much frilled flower of deep orange, several shades richer than Royal Sovereign; Camellia, a new frilled, white variety; Hero, salmon-cerise, and Flamingo, orange-cerise, were also very fine. Outstanding for its vigorous two feet stems, was Pinkie, bright vivid pink. Daffodil, Blue Bird, Gleneagles, Mary Rose, Hebe, and Picture, were other striking vases.

Messrs. Alex. Dickson and Sons had a novel arrangement showing the flowers at the back of the group in large sprays against a cream trellis background, while in front were large baskets of one or two colours. Interesting contrasts were given by Elegance arranged with Corona, King Mauve with Peggy, Crusader with Daffodil, and Lucifer with Edna May. Magnet and Flambeau were noteworthily fine, and there was a new scarlet seedling of which more will be seen later.

Messrs. R. Bolton and Son staged a striking group of almost solid colour from the profusion of bloom in close-packed vases. The outstanding novelty for distribution in 1928 was the soft salmon, Mrs. A. Searles, finely shown. What Joy (cream), Model (white), Jessie (light pink), Royal Sovereign and Colorado (orange) with Powerscourt and R. F. Felton (still among the best of the mauves) were other outstanding vases. Challenger, a pink Fancy, is another of the firm's novelties likely to be popular.

Mr. J. Stevenson, in a pretty arrangement which showed the varied colours to advantage, included Glorious (fine cerise), Marjorie (deep carmine), Nina (rosy-pink), Austin Frederick Improved (good mauve), and Guinea Gold, in a varied collection.

Messrs. James Carter and Co. also showed a well-grown and varied collection of the best varieties. We noted Model (white), Geisha (cream), Raynes Park (mauve) Venus (cream pink), Grenadier (scarlet) and Royal Sovereign (orange).

Rock Gardens on Tabling.

An excellent series of small rock gardens on tables made one of the most important features of No. 2 Tent. The popularity of grey mountain limestone, especially the weathered moss-covered, Westmoreland stone, was very marked, and no stone shows up the brilliant colours of rock plants to greater advantage, but the use of other stones noted here and there is to be commended, so long as newly-quarried material, which spoilt one of the exhibits, is avoided.

Messrs. Bowell and Skarratt, with a background of the newer Brooms Dorothy Walpole, Donard Seedling and Cornish Cream, included among their rarer plants Viola pedata and V. elatior, Erigeron flagellaris and E. leiomerus Astragalus massiliensis, Scorzonera rosea, Lewisias and hardy Orchids.

Mr. P. Gardner included the seldom seen white form of Primula farinosa, Dianthus glacialis, Aquilegia calcarata and other good things, in a setting of Yorkshire limestone.

Messrs. Sheppards had a small collection in which we noted the bright Armeria Merlin, with good plants of Oxalis enneaphylla.

Messrs. Backhouse, Ltd., using the Westmoreland stone, had good plants of Gentiana acaulis and Ramondia. The tiny Rosa Roulettii, flowering at three inches, and R. pumila at six inches, both of which bloom continuously, were prettily shown, and are obviously becoming favourites. The minor form of Arenaria tetraquetra with a number of Oxalis species, were also good.

Few of the small rock gardens had a more varied collection than that shown by Mr. Gavin Jones. Dianthus callizonus was a gorgeous plant, and with many good plants of commoner things, Myosotis spathulata, Erodium chamaedryoides rosea, Erinus hispanicus, Oxalis chrysantha, Raoulia australis minutifolia, Trifolium uniflorum, and the scarlet-flowered Saxifraga aizoides incarnata, were items not noted elsewhere in the Show.

Dr. MacWatt's exhibit from Morelands, Duns, Scotland, gained distinction from its little-known species of Primula. Colour mass was given by Auriculas (of which a particularly good blue border variety was included in quantity), P. Veitchii, P. sikkimensis and other well-known plants, but the lover of rare plants found here P. scotica, P. Ellisiae, P. microdonta alpicola, (Fig. 181) P. Florindae and a very charming P. marginata hybrid.

Messrs. Tucker's, Ltd., covered a sloping rocky bank with good things. The broad-leaved form of Saxifraga Cotyledon was strikingly good, and its profusion in flower sprays showed its value as a decorative greenhouse plant. Smilacina racemosa in excellent condition, seldom met with, was shown well. Campanula abietina, C. thyrsoidea Wahlenbergia Pumilio and alpine Columbines were also notably good.

Messrs. Oliver and Hunter, while not neglecting things the more common at once attracted attention by their unique collection of some of the aristocrats of Primula species, grown in a robust way that may well be the envy of less favourably placed gardens. In P. Littoniana, P. Prionotis, P. Florindae, P. flexilipes, P. microdonta, P. seclusa, P. luteola, P. pseudosikkimensis—we touch the fringe only of names of interest.

An interesting collection of out of the way plants was brought up by Mr. W. H. Walters, Colesbourne Gardens, Cheltenham. Habranthus pratensis is flowered well there. Elwes' bronze-leaved form of Rodgersia was very good Rheum Alexandrae, Paeonia Cambessedesii, the double form of Meconopsis quintuplinervis and a number of rare terrestrial Orchids are a few among many items of choice character included.

Messrs. Waterer, Sons and Crisp, with other good things, included Roscoea, Viola pedata, and V. rupestris, Mimulus Rargrave Fireflame, the Wargrave Trollius pumilis, Globularia incanescens, and fine plants of the little-known Pentstemon confertus coeruleus. The restful effect gained by restraint in the use of plants gave special value to the exhibit from Messrs. Clarence Elliott, Ltd., Stevenage, and the many good plants included showed up the better for their careful association. Wahlenbergia Pumilio and Oxalis magellanica were well shown

Messrs. W. H. Rogers and Son, Ltd., made good use of the Leptospermums, with Embothrium coccineum as a striking centrepiece. Campanula muralis major, Polemonium carneum Saxifraga caterhamensis, and some good Dianthus species were noted.

A charming rock garden effect was given by a brown, moss-covered, local stone, brought up by Messrs. W. E. Th. Ingwersen, Ltd., Birch Farm, Sharpthorne, East Grinstead, which showed the good plants used to the best advantage. Plants not noted elsewhere included Viola Thuringiaea, V. lutea, Epilobium chlorifolium, Alchemilla alpina and Mimulus Langsdorfii, but clumps of commoner plants gave the chief colour effect.

Mr. Fred G. Wood, with excellent plants of such useful subjects as Azalea rosaeflora, Verbena chamaedrifolia and a variety of Primulas and Saxifrages had indeed more material in shrubs and rock plants than they were able to place wisely, and the sense of overcrowding weakened the general effect of the plants.

The Wansford Nurseries exhibited miscellaneous rock plants, among which we noted Saxifraga Canis-dalmatica and Wahlenbergia serpyllifolia.

Messrs. J. Cheal and Sons backed a table of rock plants with herbaceous Lupins. May Queen, deepest purple; Delight, richest pink; and Terracotta, were outstanding among them.

Mr. G. Reuthe, with a background of Conifers and shrubs (we noted especially the beautiful little dwarf Pinus beuvronensis), showed a number of good plants from his unique collection of rock plants, terrestrial Orchids in variety, species of Dianthus, Lewisia, and other cepines.

Another exhibit of rare plants came from the Primley Botanic Garden. Berberis Thunbergii atropurpureum is a notable piece of colour; Dianthus Atkinsoni, now very rare, was finely shown; Leucadendron argenteum and the Primley Blue Malva were also good, but particularly interesting were the seedlings derived from Ceanothus papillosus varying in colour from a grey tone of blue to a rich blue and differing immensely in leaf character.

In the very varied collection of rock plants from Messrs. Rogers, Pickering, we noted good plants of Cytisus Beanii, Ourisia coccinea, Gentiana acaulis, Dianthus Freynii and Campanula Stevensii nana.

Central Garden Supplies produced a good effect in their rock garden by the use of Brooms and other shrubs as a background and foil for the choicer rock plants in front. Ranunculus parnassifolius and Achillea King Edward took the eye.

From Mr. Maurice Prichard came the group that more than any other in these limited spaces showed the great wealth of varied colour that rock plants provide at this time of year. Every plant seemed well-flowered, and among commoner things we noted Gentiana verna, Ledum Lyonii, Helianthemum lunulatum, Silene Hookeri, Aster alpinus albus and Anthyllis montana.

The interesting plants arranged by Mr. H. Hemsley included Dianthus Prince of Wales, Heeria elegans, Roscoea Humeana, Dianthus versicolor (changing from white to pink), Alyssum idaeum, Mitraria coccinea and Mesembryanthemums in variety.

Messrs. Chaplin Bros. showed a little collection of Violas in which the Chestnut-coloured Arkwright Ruby and the very deep purple Purple Bedder, a sport from Lloyd George, were the outstanding plants.

The new white Pink, White Ladies, was admirably shown by Messrs. Isaac House and Son. Its purity of colour, length of stem, good shape and profusion, are bound to make it a popular plant. Pentstemon heterophyllus and the very good blue Viola Ann Hathaway increased the colour value of the Pinks.

Mr. H. Langridge, Westerham, Kent, showed a small group of rock plants using a freshy quarried brown Kentish stone as a setting, of which the newness rather spoiled the effect of the planting.

Messrs. Maxwell and Beale had one of the most distinctive arrangements of rock plants. The Heathers in which they specialise were represented by the golden leaved and copper Ling.

Messrs. Wm. Wood and Son, Ltd., arranged a an effective exhibit, with well-flowered plants in a grey limestone formation. The less common plants noted included Pentstemon Bridgesii, Campanula Lauri, Primula Smithiana, and the Beechwood, deep carmine variety of P. farinosa.

Mr. J. Robinson showed a miniature rock garden arranged prettily for colour effect with standard varieties of Alpines, Saxifraga pyramidalis and Sisyrinchium anceps.

Messrs. Hodson, Ltd., showed rock Conifers and alpine plants.

Mr. Scaplehorn had an exhibit rich in little-known plants, with a good collection of encrusted Saxifrages in flower. We noted Lilium parvum, some fine Haberleas and Ramondias, Shortia galacifolia and Primulas Littoniana, and the Bartley strain of P. pulverulenta.

The Misses Hopkins staged a pleasant little group rich in colour provided by such favourites as Daisy Dresden China, Phlox Vivid and Armeria Laucheana.

Messrs. Jeans and Trowbridge had a rich collection of rock plants, among the varieties of which we noted some nice plants of Cyathodes Fraseri and Leptospermum hybrids.

The Horticultural College, Aldersey Hall, near Chester, sent a collection of well-grown plants of the Primulas sikkimensis, P. luteola, Red Hugh and Lissadell hybrids.

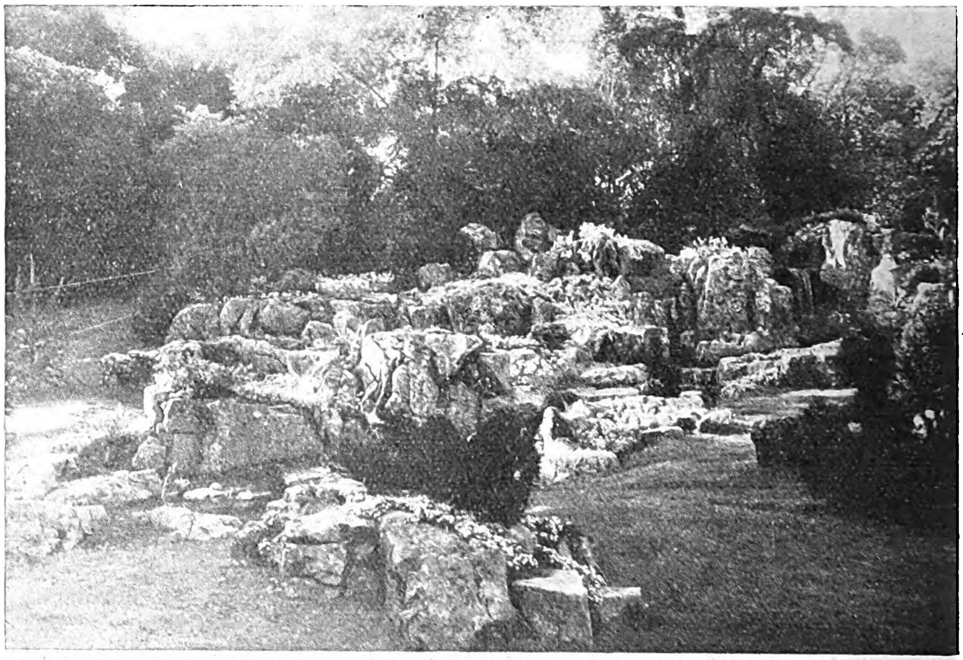


FIG. 183.—CHELSEA SHOW: ROCK GARDEN EXHIBITED BY MR. G. G. WHITELEGG, AWARDED THE SHERWOOD CUP.

Rock Gardens.

Mr. George G. Whitelegg made a very natural-looking rockery that met with general approval for the skilful arrangement of the stones, the natural method of planting, and the judicious employment of water (Fig. 183) The general effect was a piece of alpine scenery with stream, waterfall and tarn, spangled with floral gems, amongst large portions of rock laid bare on the mountain side by the action of running water from melting snow, with debris trapped in the hollows in which alpines had found a suitable rooting-medium. In the background a colony of Phlox Vivid seemed to sweep as a cascade down the rocks, as a stream flows down to the lower levels. Above this were colonies of Saxifraga caterhamensis and S. longifolia overhanging from the crevices of the rocks above. On the other side of the stream was a drift of Aquilegia pyrenaica, a delightful touch of blue, and in the sheltered side of this rock was another pretty colony of Ramondia pyrenaica, gorgeous plants growing in the shade of the rocks. Where the stream passed was a little outcrop planted with the blue Campanula muralis major, and here the water tumbled in the cairn. To the left was another bold outcrop, and next a path leading to the higher parts with masses of stones outcropping the hillside in which Saxifraga Aizoon lutea, Aethionema Warley Rose, Viola grandeur and V. lutea found congenial homes. Not the least pleasing of the many fine features was a colony of Lithospermum Heavenly Blue, and the uncommon Convolvulus Cneorum, which was finely in flower.

Mr. Garvin Jones utilised large pieces of Cheddar stone in the construction of a rock garden that was effective and restrained in effect. The biggest stones were grouped on the highest portion at the back, and from this part flowed a stream that tumbled down rocks to a broad pool in the foreground, the extremity of which was planted with Dodecatheon Meadia, Primula pulverulenta, P. sikkiminensis, P. japonica and P. Eileen Aroon.

Messrs. W. H. Rogers and Son contributed a small rock garden which showed to advantage against a dense background of shrubs. They arranged an irregular bed in the foreground and planted it very effectively with very low-growing plants, including a variety of dwarf Conifers, and this bed was separated by grass from a more pretentious rockery with very big stones. The best features were colonies of Primula pulverulenta, P. Lissadell hybrid and Tiarella unifoliata.

Mr. Clarence Elliott arranged an outcrop of boulders of beautiful pieces of grey limestone in the foreground of his rockery exhibit, with a small patch of rocks behind, suggesting the continuity of the scheme in the background, the whole planted with the eye of a keen lover and acquaintance of these floral gems in their natural habitat. It was, indeed, the planting that inspired most, and no more natural effect could be produced than the sheet of Sedum spathulifolium purpureum that seemed to slither down the side into the valley below. The summit of the rockery was overhung with the spikes of Saxifraga Arizoon lutea and S. Esther, and a moss-covered path led to other plantings of Aquilegia glandulosa, a speciality of the firm; Campanula Stevenii, Armeria Vindictive, which blended beautifully with the blue Viola Blue Stone; Meconopsis Baileyi, and Primula sikkimensis. Not the least pleasing feature, was a colony of Juniperus hibernica compressa, the plants ranging from specimens two feet tall and twenty-five years old, to pygmies two inches or so high, and some three or four years old.

Messrs. Hodsons, Ltd., made a rockery with Westmoreland limestone, which was beautifully striated. The back of the rockery was arranged in a series of terraces, somewhat formal, perhaps, but, on the whole, very effective. From the higher parts, a stream flowed to a pool in the foreground, the bank of the stream lined with stratified rocks, the tops of which were waterworn, and in the opinion of some, rather unnatural in such positions. The general effect was good and the planting effective, the most notable subjects being a colony of Azalea amoena, Daphne Cneorum, Armeria Vindictive, the yellow Genista hispanica, Primula Red Hugh, the blue Gentiana acaulis, Viola grandeur and Phlox Vivid.

Mr. **Herbert Brook** is to be complimented on his very natural rock garden, in which water was skilfully utilised; indeed, the water stream and water fall were admirably conceived and executed. By the banks of the stream colonies of such dwarf plants as Myosotis rupicola, Saxifraga Wallichii, Gentiana verna, G. angulosa, G. acaulis, Dianthus arvensis, Aethionema Warley Rose, Saxifraga Cochlearia minor and Saponaria ocymoides splendens found a suitable home, and there were other delightful subjects in variety associated with dwarf shrubs and Conifers.

Messrs. W. **Cutbush and Son** arranged a rock garden with fine pieces of sandstone, and planted it very effectively with a great wealth of rockery plants. The best feature was the waterfall, with Ferns growing in the crevices at the sides; the water tumbled down other rocks and led to a pool in the foreground. Amongst the many choice plants was a fine colony of Ledum Lyonii.

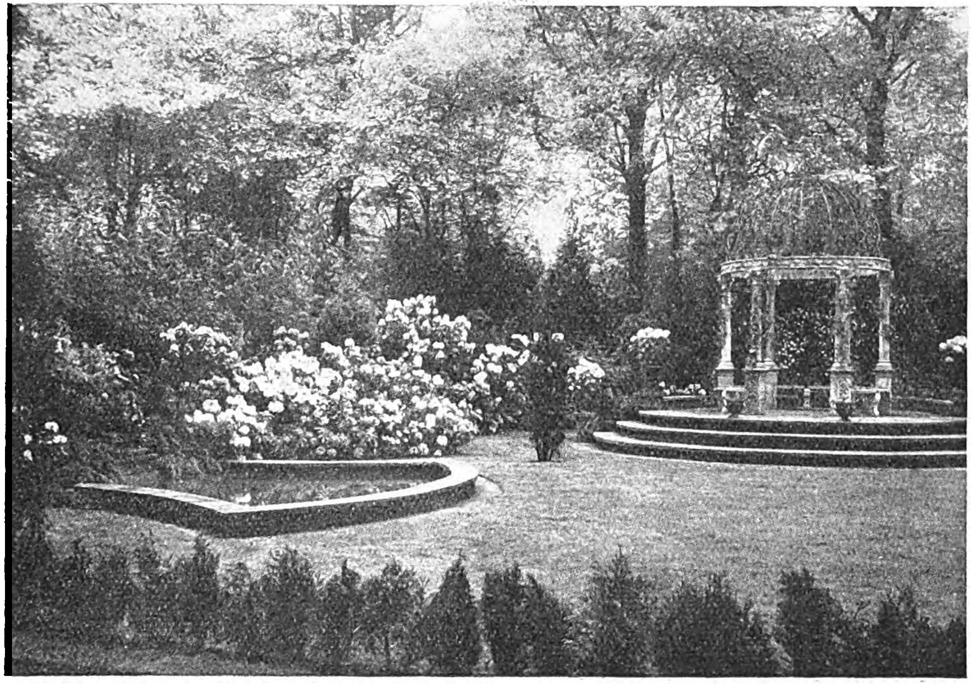


FIG. 184.—CHELSEA SHOW: RHODODENDRON GARDEN WITH VENETIAN TEMPLE EXHIBITED BY MESSRS. J. CARTER AND CO.

Messrs. **Pulham and Son** made a natural formation with weathered waterworn limestone, as found in Westmoreland, with a small stream fed from a dripping pool, the whole making a fitting finish to the range of rock gardens. The stone was of the finest quality and beautifully marked by years of running water. The disposition of the rocks allowed for spacious pockets, in which were growing colonies of many beautiful alpines.

Hardy Flowers.

The outstanding exhibit of hardy plants was the unique collection of Lilies, Irises, Eremuri, and related subjects shown by Messrs. R. **Wallace and Co., Ltd.** Nothing could have been more satisfying artistically than the beautiful arrangement of the Lilies. Japanese Maples, Bamboos and Grasses enhanced the grace that only Lily stems and foliage possess and fine cultivation was shown in controlling the flowering period of such a rich range of species, each shown in quantity. Lilium japonicum, L. regale, L. Hansonii, L. testaceum, many forms of L. umbellatum and L. Thunbergianum were outstandingly fine and the garden picture provided by a grassy glade furnished on either side with Lilies, Irises, Rhododendrons and Azaleas was very much admired.

Messrs. **Bakers, Ltd.**, arranged a pleasing group of Delphiniums and Astilbes in a rather uncommon colour scheme of blues and pinks. A pale form of Delphinium Lascelles, the double light mauve D. David, Admiration (mauve) and the well-known King of Delphiniums were included.

In Mr. J. C. **Allgrove**'s group of herbaceous plants, subjects of special interest included Rheum Alexandrae and the Eremuri Herriot with its parents E. himalaicus and E. robustus.

Messrs. **Geo. Jackman and Son** staged a clean, well-grown collection of good plants. Lavatera Olbia and Delphiniums were used as a background with Irises, Lupins, Pyrethrums and Columbines in front.

Messrs. **Kelway and Son** showed well the most varied collection of Pyrethrums with which their name has been so long associated as raisers. Paeonies were inlcuded with some rather weird nondescript colours (an intermixture of bronze and blue) in tree Lupins.

Mr. G. W. **Miller** with other useful herbaceous flowers valued for cutting had a splendid stand of the grand pink Pyrethrum Eileen May Robinson.

The finest collection of Delphiniums was staged by Messrs. **Blackmore and Langdon**, who are among our foremost raisers. Prominent varieties in a large collection beautifully grown and tastefully shown were Mrs. Foster Cunliffe, an immense mauve flower, Mrs. Shirley, Millicent Blackmore, Sir Douglas Haig, Phyllis, pale mauve, and Edward Bromet, violet, white eye, which may be described as an improvement on the well known Rev. E. Lascelles.

Messrs. **Hewitts** attracted much attention with a collection of Delphiniums representing the cream of modern varieties and exhibiting fine culture. A few varieties noted included the pretty blue of Blue Bird, the white of Mrs. Christie Miller, the Cambridge Blue of Mrs. Townley Parker, deep mauve and blue of Monarch of Wales, tender rosy mauve of Mrs. Jessie Oldham, and rich purple of Happy Thought.

Mr. **John Forbes** showed Stocks, Trollius, Violas, Delphiniums and other of his specialities.

Messrs. **Jarman and Co.** staged a charming range of Viola cornuta hybrids and Geraniums. In the Violas we ear-marked Windley Gem, very velvety violet, Ruby Gem, red-purple, Goldcrest, primrose yellow, and Golden Spur, rich yellow.

Messrs. **Maurice Prichard and Sons** staged a charming group including Verbascums, Eremuri and Pyretheums, but specially rich in the range of colour tones given by herbaceous Lupins. Brenda Prichard (apricot), Mrs. G. Prichard (pale opal), and Victoria (deep purple) being specially fine.

Messrs. **R. and G. Cuthbert** staged a group of Tritonia Prince of Orange.

The improvements in herbaceous Lupins, emphasising especially the development of yellow shades and blends of yellow and pink were well shown by Mr. G. H. **Dalrymple.**

A group including some extra fine spikes of the Lupins Sulphur Gem and Ruby King with Paeonia anemonaeflora rosea and the silvery grey of Artemisia arborea was shown by the **Maytham Gardens.**

Mr. R. J. **Case** staged Lupins, Erigerons and Geums, but had insufficient space to show them to advantage.

The **Chalk Hills Nurseries**, Mr. E. **Gallagher**, showed their giant Musks with Lupins, Geums and Irises.

Eremuri, Irises, Lupins and Pyrethrums were shown by Messrs. **G. and A. Clark, Ltd.**

Messrs. **Rich and Co.** staged Irises, Pyrethrums, Lupins and Poppies.

Mr. **Wm. Yandell** showed a very varied, well-grown collection of Violas in shallow trays.

Ranunculus, bulbous Iris, Lilies and Gladioli were staged by Mr. **Alfred Dawkins.**

Messrs. **Waterer, Sons and Crisp** painted a charming picture using at the back the yellow Lupin Sunshine and Verbascum vernale, with the blues of Delphiniums and Lupins, while in the foreground were blended the varied pinks of Lupins and Pyrethrums. A plant to note is the semi-double orange Geum named Fire Opal, of the Mrs. Bradshaw class. Lilium testaceum was well shown with Irises, etc., making the group one of the most satisfying in the show from the artistic point of view.

The modern improvement in herbaceous Lupins was admirably shown in the group staged by Mr. G. R. **Downer.** No shades of colour are now better furnished than pinks, which range from the pale tint of Lighthouse to the deep crimson-pink of Delight, a variety found continuously in evidence throughout the show. Artist is a charming pale blue. Another series begins with the pale mauve of Pilgrim, and progresses to the deep purple of Hermit.

Mr. **Amos Perry** set up an exhibit of Oriental Poppies in which we noted the fringed scarlet King George, the unblotched immaculate. E. A. Bowles, palest of pinks, and Perry's Blush

Mrs. **Allen** showed a very striking piece of colour in Gaillardia Tangerine.

One of the unique exhibits of the show was the group of Antirrhinums staged by Messrs. **Dobbie and Co.** Admirably grown, the cut spikes showed how varied and decorative the Snapdragons now are. Scarlet Prince, Fiery Belt and coccinea were noted in the scarlet shades. Pinks included Melrose, Fascination and Rose Queen. Mauve was represented by Mauve Queen, Nobile, white with crimson blotch; Prima donna, pale apricot; Moonlight, orange and pink; Gay Gordon, scarlet and yellow, were also noted.

An attractive group was arranged by Messrs. B. **Ladhams** who, over a groundwork of Myosotis, Violas, Daisies, Pinks, etc., had columns of taller subjects, such as Thalictrum Purple Cloud and Pyrethrums. The little-known but charming blue of Rhazya orientalis was seen here. Veronica Teucrium Shirley Blue was also good. Sophora microphyla and Solanum crispum were representative of the shrubs included.

Messrs. **G. Gibson and Co.** showed Regal Lupins, Trollius and similar herbaceous subjects, using Alyssum, Saxifrage, etc., as a foreground.

A group of mixed herbaceous and rock plants, including especially Delphiniums, Lupins, Irises, and Columbines, was shown by Messrs. **WILSON AND AGAR.**

Mr. H. **CLARKE** put up a collection of the best varieties of Violas in pans and baskets. An item of interest was a pot of Mimulus moschatus described as the true fragrant variety, and said to have been found in an old cottage garden in Somerset. Unfortunately, we failed to detect the fragrance. Perhaps it was the heat of the tent.

Messrs. E. J. **REDGROVE AND SON** showed Lupins, Geums and Paeonies, with an edging of the favourite Daisy Dresden China.

Mr. H. H. **SCOTT** exhibited Dahlia Coltness Gem.

The end included a rockery, and this was backed by Japanese Acers.

A very restful garden, overhung with trees, was arranged by Mr. **WILKES**, Horsecombe Quarries, Combe Down, Bath. It served to show the effectiveness of this Bath stone for garden seats, vases, sundials, etc., many fine examples of which were on view, and the garden afforded opportunity to show how such ornaments may be employed to good effect.

Mr. **JAMES MACDONALD** laid a perfect lawn with a formal water garden in the centre and utilised many handsome grasses in borders surrounding the same. A line of golden Phleum pratense aurea lineatus in front of a row of Dactylus aurea elegantissima, with taller grasses such as Eulalia japonica variegata and Glyceria planted a Rhododendron garden, (Fig. 184) with an ornate Venetian Temple in the background approached by flights of circular stone steps and ornamented with Hydrangeas in leaden vases; the pillars of the temple were furnished with the beautiful-leaved Vitis Henryi. Two fan-shaped pools, one on either side, were fed by fountains that released the water at the feet of leaden figures, representing a boy with pipes and a girl with a lamb. The Rhododendron border on either side contained magnificent plants of a large number of varieties and the flowers were thrown into bold relief against the dense background of Conifers. Looking through the temple against a screen of Ferns overhung by a stately plant of Viburnum Opulus, finely in flower, the effect was enchanting,

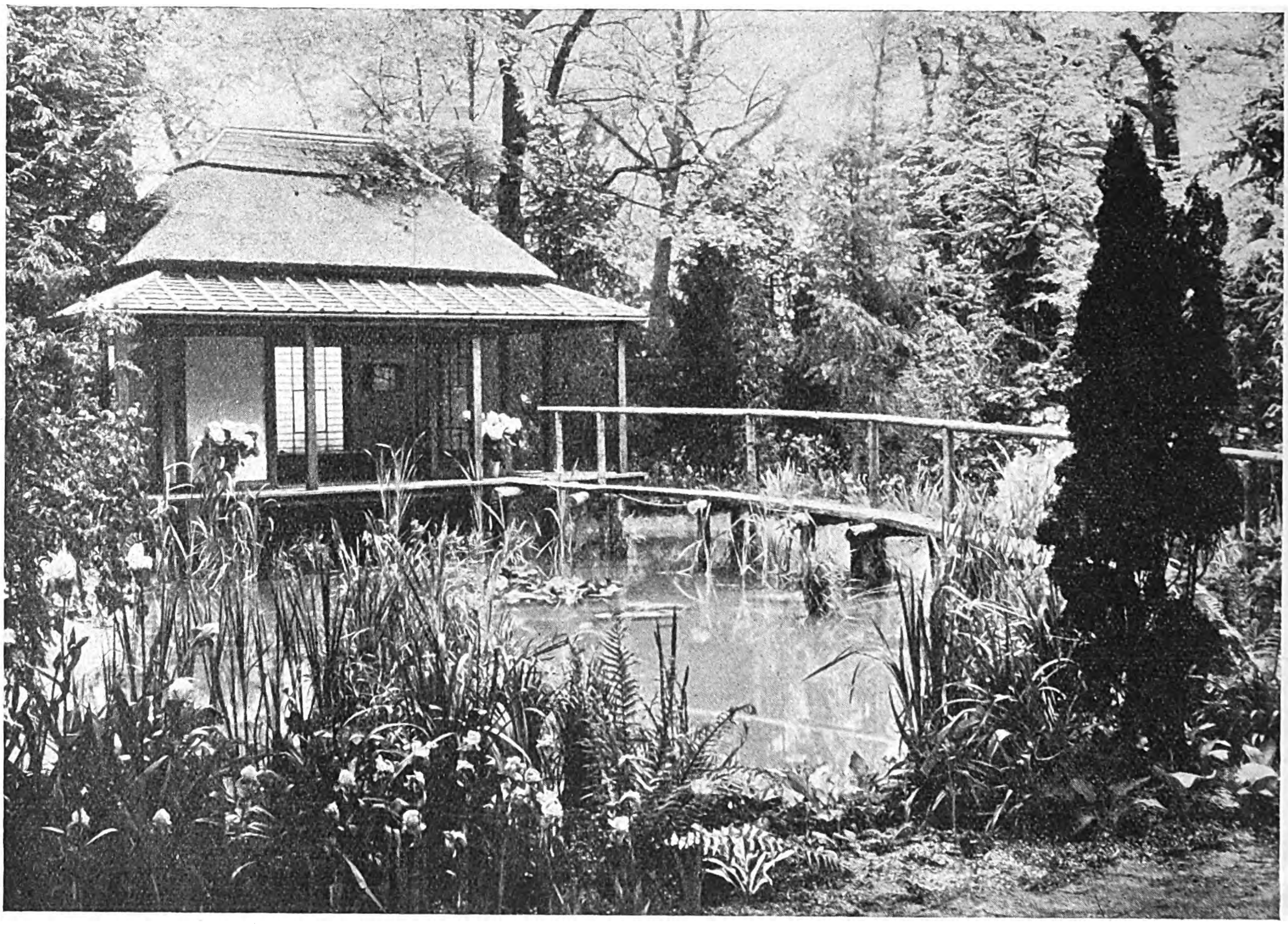


FIG. 185.—CHELSEA SHOW: JAPANESE GARDEN EXHIBITED BY MESSRS. W. H. GAZE AND SONS.

and the cool, green sward in the foreground was restful and in perfect harmony with the scheme.

Formal Gardens.

Messrs. **PULHAM AND SON** designed a very imposing garden in which a raised stone terrace with a very ornate pergola was the chief feature. The flagged pathway and terrace were fine examples of the paviour's art, and the stone pillars of the pergola were faultless in execution; it only needed the weathering influence of time to give the whole an established appearance. Much space was occupied by grass, in which were water-pools and beds of Roses, with old leaden figures raised on pedestals. The scheme was on a pretentious scale and the exhibit ranked as one of the best of its type.

Messrs. W. **WOOD AND SON, LTD.**, erected a Tudor summer house in a garden of the same period, a very pleasing example of garden architecture with flagged paths, and central pool fed from dolphins, the water falling down steps to a pool grouped about with Primulas, Campanula glomerata, Aquilegias, Thrift and other old-time plants. The upper part of the garden was planted with Irises, and on banks held in position by dry walls were superb Lupins. spectabilis at the back, was an example of perfect planting, and at the other end ornamental grasses were planted in the foreground of a shrub border gay with bright flowers.

Messrs. **REAMSBOTTOM AND CO.** made a small formal garden with a series of beds edged with Box and planted with St. Brigid Anemones in different colours, flowers which they specialise in and possess an excellent strain.

Messrs. **MAURICE PRICHARD AND SONS** planted a small garden with hardy border flowers of which Lupins were exceptionally good, and other features were choice Pyrethrums and Verbascum.

LONDON GARDENS planted the forecourt of a house with Verbenas in formal beds, the rest paved with stone. Under the windows of the house was a water pool for aquatics. The Verbenas were splendid plants carrying a wealth of beautiful flowers.

Messrs. **HODSONS** made a small formal garden and exhibited a model hard tennis court with a green surface.

Messrs. J. **CARTER AND CO.** designed and

Messrs. R. **WALLACE AND CO.** exhibited a garden in which water was employed largely and to good effect, a series of broad pools terminating in a rock-face of water-worn limestone from which water dripped in a most natural manner, and in which Ferns found a congenial home. The banks of the pools on either side were planted with water-loving plants, such as Iris sibirica, Primula japonica and bog-loving Orchids. The far end terminated in a stone garden house on a terrace with steps leading to the pool. In turf around the water were numerous fine specimen Japanese Maples, and in the borders on the outskirts were floriferous Azaleas, Rhododendrons, Brooms, specimen Conifers and other shrubs.

Messrs. **VERNON BROS.** had a formal garden suitable for a London garden, in which a semicircular pergola was the outstanding feature. The pergola was furnished with climbing Roses finely in flower, and in front of it was a circular pool with a bronze statue in the centre, a magnificent piece of work. The centre of the garden included a broad, flagged pathway and borders on the outskirts were planted with a variety of showy flowers.

Messrs. R. Neal and Sons, Ltd., made a feature of a sunk garden, in a pleasing design, the beds in this sunk garden being very attractively planted with dwarf Roses, Antirrhinums and Carnations. At the extreme end of the garden was a border of fine Rhododendrons which showed to great advantage against its background of tall Cupressus. On the outskirts were narrow borders with a row of white and blue Violas.

A Japanese garden designed by Messrs. W. H. Gaze and Sons was one of the most novel and pleasing of the formal gardens (Fig. 185). Almost all the area was occupied by water which extended beneath a summer house built on piles, as is common in gardens in Japan. The summer house, which was finely designed, was approached by a rustic bridge leading past clumps of Iris sibirica of which there was a fine display in the centre of the water. Around the banks were other water-loving plants, and next to these a broad border of Flag Irises with Japanese Maples and Azaleas at intervals. This particular garden was a great attraction, both for its originality and fine execution.

Messrs. J. Cheal and Sons had a delightful garden in which Polyantha Roses contributed bright colour, and broad borders on either side were furnished with flowering shrubs and plants in variety, Rhododendrons, Wistarias, Brooms, Spiraeas and Campanula persicifolia being especially good. At the back of a stone terrace, with a circular pool in the foreground, was a bank bright with showy Azaleas.

A small round house thatched with Heather, after the fashion of the old Dutch houses found in some parts of Essex, was the special feature of the delightful garden arranged by Messrs. Bakers, Ltd. In front of the summer house was a pool, the banks of which were lined with water-loving plants, and at one part the pool was crossed by a rustic bridge in stone. Old Westmoreland stone was employed at suitable points of vantage, and a free use was made of flowering plants that love moist surroundings. Clumps of Daphne Cneorum, Incarvillea Delavayi, Primula japonica in variety and grand plants of Trollius were some of the outstanding features.

Messrs. A. Charlton and Sons arranged a circular sunk garden with dry stone walls enclosing it, and approached by four flights of stone steps, and having two recesses with stone seats, the centre being set off by a leaden figure surmounted by a bird-bath. The terraces around were planted with a variety of shrubs and flowering plants associated with many choice ornamental leaved Acers. Rhododendrons and Kalmias were splendidly in flower, and gave big patches of colour. In the crevices of the paved floor and in the nitches of the wall crevice plants in variety were skilfully disposed.

Messrs. R. and G. Cuthbert and Son arranged an Azalea garden with three beds at one end massed with Hydrangeas. They built a retaining wall of old grey limestone and formed a terrace with a shrub border in the background, the chief subjects in flower being Azaleas and there was a bed of these floriferous plants at the end opposite the Hydrangeas. In the centre of the exhibit was a sunk garden with a pool and some grand plants of Azaleas bordering it. A row of Wistarias in bloom near to the edge of the terrace was a very pleasing feature.

Mr. Ernest Dixon had a small sunk garden with a cane shelter at one end and he arranged a rockery in a very natural manner, the stone being exceptionally fine, old, grey, weathered limestone.

Messrs. Sutton and Sons showed model hard and grass tennis courts and a miniature bowling green, all to scale, and with red rubble paths between, the whole enclosed by a dwarf Yew hedge.

Tulips.

Tulips were in general past their best before the date of the show, and the heat during the show unfavourably affected some of the exhibits. This brought into only greater prominence the richness in quality and variety of the exhibit staged by Messrs. Barr and Sons in which, at the opening of the show, a weak bloom was hardly to be found. Prince of Orange formed a noble centrepiece. Bouton d'Or contrasted with La Tulipe Noire—a grand vase of Zomerschoon—Bleu Aimable, Ronald Gunn, Pensu Amere, Corydon, Princess Juliana, Farncombe Sanders, Goldfinder were a few other vases singled out for their beauty. The attractiveness of the vivid colouring of the Tulips was enhanced by the use of Japanese Maples and Aspragus Sprengeri.

Another rich group of May-flowering Tulips was staged in fine condition by Messrs. Dobbie and Co. While a catalogue is needed to do the collection justice, a few varieties may be mentioned, *e.g.*, the white Carrara and Zwanenburg (the latter rather spoiled by its black pollen) the deep scarlet of City of Haarlem, the glowing carmine of Petrius Hondius, the orange of Orange King and La Merveille, and purple of Frans Hals. Wm. Pitt, Harry Veitch, Charm, Salmon King and Clara Butt were also included a fine condition.

The Bronwylfe Fruit Farm showed a varied collection of Cottage and Darwin varieties, but the flowers were already past their best.

Mr. Herbert G. Longford also showed good Tulips, arranging them as tall columns over a field of blue Spanish Irises.

Zwanenburg, the new white, Samson, Vesta and Mrs. Kerrell, were included in some good flowers shown by Messrs. Daniels Bros.

Messrs. R. H. Bath, Ltd., put up an interesting collection. The glowing rose of Triton and the rich colouring of the breeders Louis XIV and Turenne were prominent, with a large batch of that richest of yellows, W. T. Ware. Pyrethrums, Trollius, Lupins and some early Gladioli of the primulinus type were included in this group.

Mr. G. W. Miller included a few of the lesser known varieties in his collection of herbaceous pink Cottage Tulips; Amber, very late and Professor Westwick, a striking coloured, Cottage variety, were noted, with Walter T. Ware and The Pearl.

Fruit and Vegetable Committee.

Mr. A. H. Pearson (in the Chair), Mr. Jos. Cheal, Mr. W. Poupart, Mr. T. Pateman, Mr. W. Giles, Mr. P. C. M. Veitch, Mr. F. Jordan, Mr. W. H. Divers, Mr. E. Harriss, Mr. E. Neal, Mr. H. V. Taylor, Mr. J. Basham, Mr. A. Bullock, Mr. G. F. Tinley, Mr. A. E. Newby, Mr. J. Harrison, Mr. A. Metcalfe, Mr. A. Poupart and Mr. A. N. Rawes (Secretary).

Vegetables.

The Hon. Vicary Gibbs (gr. Mr. Edwin Beckett), contributed one of the superb collections of vegetables for which he has gained fame at all the important exhibitions. On this occasion Mr. Beckett adopted a different style of staging, and introduced another novelty in including beds with plants as growing. The display was arranged on the ground, and occupied a space of twenty-four feet by twenty feet. Each corner was occupied by a stand of circular outline towards the centre, and in the middle was a tall trellised stand crowned with pot plants of Capsicums of red and yellow varieties. This central stand was in two portions, with Aubergines fruiting in pots plunged in soil, and with a carpet of sweet Potatos. On the stand were shelves to accommodate such subjects as Marrows, Cauliflowers, Peas, Beans and Beets. The corner stands were grouped with a great variety of vegetables of the highest quality and most skilfully blended to produce a pleasing colour effect. With regard to quality, the exhibit reached the highest stage of the grower's art, for not a single dish left anything to be desired or admitted of adverse criticism.

Messrs. Sutton and Sons adopted a novel style of displaying vegetables, and made an exhibit equal in effectiveness to a group of fine plants or flowers. It was a bold attempt and entirely successful. The major portion of the exhibit was arranged on a low, semi-circular dais, carpeted with fine turf. The background rose to the eave of the tent and was covered with black velvet. One of the principal features were columns surmounted with baskets containing different vegetables, and those at the back were connected at the top with festoons of Smilax. The great success resulted largely from the skilful blending of the differently coloured subjects, in red, scarlet, yellow, green, white, purple, and many other colours. The collection embraced 150 dishes of distinct kinds and varieties, representing practically all the kitchen garden affords throughout the whole year. Of the sorts we have only room to refer to the splendid Cauliflowers, Peas, Cucumbers, Carrots, Tomatos, Beans and Potatos, representative of the choice strains offered by this firm.

Messrs. J. Carter and Co. exhibited vegetables of fine quality, on staging with twenty-four feet run of frontage. The group was interesting in that growing plants were arranged with the picked produce. Thus Broad Beans were shown carrying the pods, with cones of pods in association. Cucumbers, Peas, Florence Fennel, Indian Corn, Aubergines and others were similarly exhibited, and the growing plants were of great interest, as showing the cropping qualities of the various varieties. Cauliflowers All-the-Year-Round, Forerunner and First Crop were especially fine, and there were excellent Marrows, Tomatos, Peas, Lettuces, Artichokes, Asparagus and various other kinds.

Fruit.

Messrs. T. Rivers and Son, Ltd., showed pot fruit trees, filling an area of 400 square feet. This fine exhibit included splendid Orange trees bearing large crops of fruits and with exceptionally healthy growth. Peaches and Nectarines were represented by many well-fruited trees of such varieties as Peregrine, Kestrel, Duchess of Cornwall (Peaches); Early Rivers, Cardinal and John Rivers (Nectarines), the last a comparatively new sort which ripens its fruits earlier than any other variety in a cold house or out-of-doors. Cherry trees, with fine crops of fruits, and Figs contributed further variety to this excellent exhibit.

Messrs Laxton Bros. exhibited Strawberries as usual, and the high quality of the plants and berries surprised everyone, considering how unfavourable the season has been; indeed, we think this was the finest exhibit of Strawberries they have shown at Chelsea. They had pot plants all carrying heavy crops of ripe fruits, and many baskets of gathered berries. The Duke variety was given the central position, this being, in the firm's opinion, the finest new maincrop variety since Royal Sovereign was raised, and likely to supersede the latter in the many districts where it seems to have deteriorated. Amongst the novelties was Duchess of York, a maincrop variety of fine flavour, with strong constitution and bright scarlet colour. Other good sorts were Robust, maincrop; Maréchal Foch, mid-season; Majestic, mid-season; and Lord Beatty, a big, wedge-shaped variety.

Major the Hon. Sir John Ward showed a general collection of hot-house fruits, of which Melons predominated, there being fifty excellent fruits of such sorts as Hero of Lockinge, Ringleader, King George, Chilton Eclipse and Universal. Stands of Grapes of Black Hamburgh and Foster's Seedling were arranged toward the back, amongst the Melons, and in the foreground were choice Peaches, Nectarines, Strawberries and Figs. The quality of all the fruits was good and reflected the highest credit on the skill of the gardener, Mr. C. Beckett.

Messrs George Bunyard and Co., Ltd., exhibited a new Cherry named Chinese Early. It was discovered by the late F. N. Meyer in 1907 near Tangsi, Chekiang Province, where it is largely grown in orchards. Mr. Meyer sent grafts to Messrs. Bunyard from which they raised the first trees in this country. It was at one time considered to be Prunus Pseudocerasus; botanists now consider it to be distinct from this, but the exact name has not yet been determined. Owing to the flowers being produced very early in the year, it is not safe to plant this Cherry out-of-doors, though it is quite hardy in other respects. Under glass or on a wall it produces fruits abundantly, which ripen early in May, without any fire-heat. Mr. E. A. Bunyard informs us that the tree is quite self-fertile, and fruits quite well where one tree only is grown. The flavour is very sweet and juicy, and the bright pink colour most attractive; but the fruits are of small size.

Awards by the Council.

Challenge Cups.

Sherwood Memorial Cup.—For the most meritorious group in the Show; to Mr. G. G. Whitelegg.

The Cain Cup.—For the best exhibit by an amateur; to Sir Jeremiah Colman, Bart. (gr. Mr. J. Collier), Reigate, for Orchids.

The Orchid Challenge Cup.—For the best group of Orchids arranged by an amateur on a space not exceeding 60 sq. feet. This competition is open only to those amateurs who employ not more than three assistants in the Orchid houses, including the head gardener; to J. J. Joicey, Esq.

Silver Cups.

To Messrs. Bunyard and Co., for Irises; to Messrs. Waterer, Sons and Crisp, for Herbaceous Plants; to Messrs. H. G. Alexander, Ltd., for Orchids; to Messrs. J. and A. MacBean, for Orchids; to Messrs. Barr and Sons, for Tulips; to Messrs. James Carter and Co., for Vegetables; to Messrs. T. Rivers and Son, for fruit trees in pots; to The Hon. Sir John Ward, for fruit; to Messrs. Chaplin Bros. for Roses; to Messrs. R. and G. Cuthbert, for Azaleas; to Messrs. J. Waterer, Sons and Crisp, for Rhododendrons; to Messrs. Blackmore and Langdon, for Begonias; to Mr. H. J. Jones, for Hydrangeas; to Mr. Frank Ladds, for Hydrangeas; to Messrs. L. R. Russell, Ltd., for Tree Ferns, Stove and Greenhouse Plants; to Messrs. Hillier and Sons, for Flowering Trees and Shrubs; to Messrs. G. Jackman and Son, for Clematis; to Mr. R. C. Notcutt, for Hardy Shrubs; to Messrs. James Carter and Co., for a garden; to Messrs. R. Wallace and Co., for a garden; to Mr. Herbert Brook, for a Rock Garden; to Mr. Gavin Jones, for a Rock Garden.

Medals.

Gold Medal.—To Messrs. R. Bolton and Son, for Sweet Peas; to Messrs. Dobbie and Co., for Sweet Peas; to Messrs. Charlesworth and Co., for Orchids; to Sir Jeremiah Colman, Bart., for Orchids; to the Hon. Vicary Gibbs, for Vegetables; to Messrs. Sutton and Sons, for Vegetables; to Messrs. R. Wallace and Co., for a mixed group of Lilies, Irises and other plants; to Messrs: James Carter and Co., for Greenhouse plants; to Messrs. Sutton and Sons, for Salpiglossis; to Messrs. C. Engelmann, Ltd., for Carnations; to Messrs. Allwood Bros., for Carnations and Pinks; to Messrs. Bakers, Ltd., for a Garden; to Mr. G. G. Whitelegg, for a Rock Garden.

Silver-Gilt Hogg Medal.—To Messrs. Laxton Bros., for Strawberries.

Silver-Gilt Flora Medal.—To Messrs. Cowan and Co., for Orchids; to Messrs. Stuart Low and Co., for Orchids; to Messrs. Sanders, for Orchids; to Messrs. Frank Cant and Co., for Roses; to Mr. George Prince, for Roses; to The Yokohama Nursery Co., for Japanese trees, miniature gardens and Azaleas; to Mr. Amos Perry, for hardy Ferns, etc.; to Lady Aberconway and the Hon. H. D. McLaren, for Hippeastrums and Streptocarpus; to Messrs. Stuart Low and Co., for Carnations; to Messrs. W. Fromow and Sons, for Japanese Maples; to Messrs. Hillier and Sons, for Conifers; to Mr. G. Reuthe, for shrubs; to Messrs. H. Charlton and Sons, for shrubs; to Messrs. Gaze and Sons, for a garden; to Messrs. James McDonald, for a grass garden; to Messrs. R. Neal and Sons, for a garden; to Messrs. W. Wood and Sons, for a garden; to Messrs. M. Prichard and Sons, for rock garden plants; to Mr. Clarence Elliott, for a rock garden; to Messrs. Hodsons, Ltd., for a rock garden; to Messrs. Dobbie and Co., for Antirrhinums.

Silver Flora Medal.—To Messrs. A. Dickson and Sons, for Sweet Peas; to Messrs. J. Cypher and Sons, for Orchids; to Mr. J. J. Joicey, for Orchids; to Mr. J. H. Pemberton, for Roses; to the Exors. of the late Mr. W. C. Slocock, for Rhododendrons; to Messrs. Toogood and Sons, for a group; to Messrs. Stuart Low and Co., for a group of Australian and other greenhouse plants; to Baron B. Schröder, for Hydrangeas; to Mr. S. Smith, for Cacti and Succulents; to Mr. C. H. Herbert, for Pinks; to Messrs. K. Luxford and Co., for Carnations; to Messrs. Fletcher Bros., for Conifers and flowering shrubs; to Mr. H. Hemsley, for shrubs; to The Hollamby's Nurseries, for trees and shrubs; to Messrs. R. Gill and Sons, for shrubs; to Messrs. J. Waterer, Sons and Crisp, for Conifers and shrubs; to Messrs. Vernon Bros., for a garden; to Messrs. W. H. Rogers and Son, for alpine plants and dwarf shrubs; to Mr. E. Scaplehorn, for rock garden plants; to Mr. W. Wells, Junr., for rock garden plants; to Messrs. Tuckers (Oxford), Ltd., for rock garden plants; to Messrs. W. H. Rogers and Son, for a rock garden; to Messrs. Carter, Page and Co., for Dahlias: to Mr. G. R. Downer, for Lupins; to Messrs. G. Jackman and Son, for Herbaceous plants; to Messrs. M. Prichard and Sons, for Herbaceous plants; to Messrs. M. Prichard and Sons, for Lupins; to Mr. W. Yandell, for Violas.

Silver Grenfell Medal.—To Mr. Percy S. Cane, for plans, paintings and photographs of Gardens.

Silver-Gilt Banksian Medal.—To Mrs. W. R. Dykes, for Irises; to The Orpington Nurseries Co., for Irises; to Messrs. Black and Flory, for Orchids; to Messrs. Mansell and Hatcher, for Orchids; to the Exors. of the late Mr. H. T. Pitt, for Orchids; to Messrs. B. R. Cant and Sons, for Roses; to Messrs. W. Cutbush and Son, for Roses; to Messrs. W. Easlea and Sons, for Roses; to Mr. E. J. Hicks, for Roses; to Messrs. M. Coster and Sons, for Rhododendrons; to Messrs. J. Peed and Son, for stove and greenhouse plants; to Mr. James Douglas, for border Carnations; to Messrs. J. Cheal and Sons, for shrubs; to Messrs. L. R. Russell, for trees, shrubs and climbers; to Messrs. W. Watson and Sons, for Brooms; to Messrs. A. Charlton and Sons, for a garden; to Messrs. J. Cheal and Sons, for a garden; to Messrs. Pulham and Sons, for a garden; to Mr. G. Reuthe, for Rock Garden plants; to Mr. C. Elliott, for Alpines; to Messrs. W. Cutbush] and Son, for a rock garden; to Messrs. Pulham and Son, for a rock garden; to Messrs. Blackmore and Langdon, for Delphiniums; to Mr. G. H. Dalrymple, for Lupins and Primulas.

Silver Banksian Medal.—To Messrs. Sutton Bros., for Orchids; to Messrs. E. Webb and Sons, for greenhouse plants; to Messrs. A. F, Dutton, Ltd., for Carnations; to Messrs. W. Cutbush and Son, for clipped trees; to Mr. C. Turner, for shrubs; to Mr. E. Dixon, for a garden; to The London Gardens, for a garden; to Messrs. Oliver and Hunter, for alpines; to Messrs. Waterer, Sons and Crisp, Ltd., for rock garden plants; to Messrs. Bakers, Ltd., for herbaceous plants; to Messrs. Chaplin Bros., Ltd., for Violas; to the Chalk Hill Nurseries, for herbaceous plants; to Messrs. Hewitt and Co., Ltd., for Delphiniums; to Messrs. Kelway and Son, for herbaceous plants; to Messrs. Ladhams, Ltd., for hardy plants.

Flora Medal.— To Mr. J. Stephenson, for Sweet Peas; to Mr. H. Dixon, for Orchids; to Messrs. Dobbie and Co., for Tulips; to Messrs. L. J. Endtz and Co., for Azaleas and Hydrangeas; to Mr. W. H. Walters, for hardy plants; to Messrs. Ellisons, for Ferns and Palms; to The Horsecombe Quarries and Stone Works, for a garden; to The Central Garden Supplies, for alpine plants; to Mr. F. G. Wood, for alpine plants and dwarf shrubs to Mr. H. Clarke, for Violas; to the Maytham Gardens, for herbaceous plants; to Messrs. A. J. Allen and Co., for Gaillardias; to Messrs. Rich and Co., for herbaceous plants; to Mr. Amos Perry, for Poppies.

Banksian Medal.—To Messrs. James Carter and Co., for Sweet Peas; to Major H. F. Fletcher, for Tulips; to Messrs. E. Paul and Co., for Roses; to Mr. T. Lewis, for Rhododendrons; to Mr. J. C. Allgrove, for shrubs and herbaceous plants; to Messrs. Daniels Bros., for a group of Roses, shrubs, etc.; to Mr. G. G. Whitelegg, for shrubs and rock garden plants; to Messrs. Lowe and Gibson, for Irises, Lilies and border Carnations; Mrs. M. Denny, for greenhouse plants; to Mrs. Sheppee, for Calceolarias; to Messrs. Bakers, Ltd., for alpines; to Mr. W. E. T. Ingwerson, for rock garden plants; to Messrs. Maxwell and Beale, for alpines and Primulas; to Mr. T. Gardner, for rock garden plants; to Messrs. W. Wood and Sons, for alpine plants; to Messrs. J. Cheal and Sons, for Dahlias; to Messrs. G. and A. Clark, for herbaceous plants; to Messrs. E. J. Redgrove and Sons, for herbaceous plants; to Mr. R. J. Case, for hardy plants.

Bronze Grenfell Medal.—To Miss E. H. Adie, for paintings; to Miss S. Avory, for paintings; to Miss A. L. Spark, for paintings; to Miss Winifred Walker, for paintings.

⁂ *Our remarks on the trees and shrubs' educational exhibits and horticultural sundries, will be published in our next issue.*

ROYAL GARDENERS' ORPHAN FUND.

The Annual Festival Dinner of this gardening charity was held at the Hotel Victoria, Northumberland Avenue, W.C.2., on Friday, May 20, under the presidency of Sir Henry Whitehead; the dinner was laid in the handsome Edward VII Room, and the tables were beautifully decorated by Mr. Harry Miles, who employed yellow Irises and Yellow Arum Lilies to complete a scheme both original and pleasing. Sir Henry Whitehead was accompanied by Lady Whitehead, and amongst others present we noticed Mr. and Mrs. E. Sherwood, Mr. and Mrs. W. Cuthbertson, Mr. and Mrs. D. Cuthbertson, Mr. and Mrs. D. Ingamells, Mr. P. R. Barr, Mr. G. H. Barr, Mr. G. Ingram, Mr. J. M. Bridgeford, Mr. H. J. Jones, Mr. and Mrs. J. E. Dixon, Mr. and Mrs. J. F. McLeod, Mr. and Mrs. A. H. Howard, Mr. A. Metcalfe, Mr. and Mrs. G. F. Tinley, Mr. W. Poupart, Mr. F. A. Secrett, Mr. A. Dawkins, Mr. and Mrs. C. H. Curtis, Mr. John Collingridge, Mr. and Mrs. Frank Ladds, Mr. R. B. Leech, Mr. D. Campbell, Mr. W. Howe and Mr. and Mrs. John Linford.

After the usual loyal toasts had been received, the principal toast of the evening—that of the Royal Gardeners' Orphan Fund—was proposed by the Chairman. He described gardening as one of the great arts, and said that nothing was more enjoyable than to go into one's garden and see the picture the gardener had produced. Sir Henry said that the gardener's art, however, differed from that of painters, who, during their life time, received enough for their work to enable them to look forward to their future without any feeling of uneasiness. The gardener's case was different, for his finished article does not demand that return in the way of value that the work of a great painter does, and he has no opportunity of laying much aside for the future, or for his children. Sir Henry said he had looked forward to occupying the chair that evening with a great deal of pleasure because his sympathies were very definitely in the direction of inclining to help those who cannot help themselves, and he felt sure everybody came there with the same feeling and desire.

Mr. E. Sherwood, in responding, said it was his privilege to do so once again as Treasurer of the Fund. With reference to Sir Henry's remarks on the painter, he ventured to say that it was the gardener who creates the glorious landscapes which make such indelible pictures on our minds, and which the painter only copies.

The Fund was doing good work in providing for the orphans of gardeners who in their lifetime have been unable to save. Mr. Sherwood said he had received many letters of gratitude from the mothers of those orphans for whom they were able to make provision. At the moment there were not so many orphans needing the benefits of the Fund, as in the past, but the time would come when there will be many more who will be in urgent need of the Fund. Mr. Sherwood was glad to say the Committee had been able, in a great measure, to replace the investments which had, perforce, to be sold during the years of the war, when it was next to impossible to obtain even the annual subscriptions. He was glad to notice that Mr. G. J. Nicholls, who occupied the chair at the last Festival Dinner, was with them again that evening. Some people seemed to think, said Mr. Sherwood, that the activities of the Fund are only centralised around the London metropolis, but this is not so, and he would like to see more secretaries in different parts of the country. Mr. Sherwood thanked all those who took an interest in the Fund, and hoped they would continue to do so.

Mr. G. J. Nicholls responded to the toast of the Visitors in place of Mr. Leonard Sutton, who was unable to attend, and Mr. T. R. Moncrieff, J.P., responded. At this stage of the proceedings, Mr. A. C. Bartlett, the Secretary, announced that the contributions amounted to over one thousand guineas. The principal sums on the Chairman's list included £100 contributed by himself; 130 fully paid ten per cent. shares in Messrs. G. Bowles, Nicholls and Co., from Mr. George J. Nicholls; fifty guineas from Messrs. Hurst and Son; £50 each from Sir James Hill and Sons, Messrs. Sutton and Sons, and Mr. John Harrison; twenty-five guineas from Messrs. Rothschild and Co.; twenty guineas from the Royal Horticultural Society; twelve guineas from Messrs. Corry and Co.; ten guineas from Messrs. Barr and Sons; eight guineas from Mr. David Swain; seven guineas from Messrs. Stewart and Co.; £240 collected by Mr. David Ingamells in Covent Garden Market, including fifteen guineas from Mr. F. A. Secrett; ten guineas each from Mr. Ingamells, Mr. H. Miles, Mr. J. L. Kinnell, Mr. J. Cull, Mr. M. Larsen and Mr. J. Collingridge; seven guineas from Mr. H. F. Hannibal; six guineas each from Mr. W. Turner, Mr. R. T. Bates and Mr. D. Tucker; five guineas each from Messrs. Lowe and Shawyer, Mr. A. Dimmock, Mr. W. T. Ware, Mr. J. Kirk, Mr. J. Linford, Mr. R. A. Witty, Mr. A. H. Stevens, Messrs. G. Prickett and Son, Mr. W. Maxwell, Mr. A. H. Maxwell, Mr. F. W. Ladds, Mr. H. Jolis, Mr. W. Stevens, Mr. G. Woodstock, Mr. T. J. Poupart, Mr. Edwards, Mr. F. Ridley, Mr. W. H. Robins, and £5 from Mr. A Ward; seventy guineas from Mr. J. M. Bridgeford, including eighteen guineas from Messrs. Watkin and Simpson's Cricket and Tennis Clubs; five guineas each from Messrs. Watkin and Simpson; Mr. A. Watkins, Mr. J. M. Bridgeford, Mr. A. H. Howard and Messrs. J. Bodger and Sons; £25 from Mr. H. J. Jones, including five guineas each from Mr. F. P. Steward, Mr. D. B. Crane, and Mr. W. C. Sayers; £22 from Mr. J. F. McLeod and friends; £20 from Mr. J. E. Dixon and friends; £16 5s. 0d. from Mr. G. F. Tinley, including £8 18s. 6d. from *The Gardeners' Chronicle* Orphan Fund Box, and five guineas from the proprietors of *The Gardeners' Chronicle*, Ltd.; and fifteen guineas from Mr. A. Rayner. Five guineas each were contributed by Mrs. M. Campbell, Baron Bruno Schröder, Mr. W. E. Churcher, Mr. A. Dawkins, Mr. C. Heidsieck, Mr. A. R. Hollins, Mr. W. Marshall, Major E. G. Morro, Mr. W. C. Sayers, Mr. F. Turner, Mr. W. A. Vernon and Mr. R. B. Leech; £5 each from Mrs. E. Shepherd, Messrs. Charlesworth and Co., Lord Leverhulme, Sir Otto Beit, Mr. E. Tate and Mr. G. A. Witelaw.

The toast of "The Chairman" was proposed by Mr. William Cuthbertson. Sir Henry Whitehead in reply expressed his thanks and stated that it gave him great pleasure to preside at the Dinner of such a worthy institution. During the evening a programme of vocal and instrumental music was rendered under the direction of Mr. Ralph Norris.

Obituary.

William Knowles.—We regret to record that Mr. William Knowles, gardener to the Earl of Dysart, Ham House, Petersham, Surrey, died on May 16 last, from bronchitis, after only two days' illness. Altogether, Mr. Knowles had served the Earl of Dysart for forty-three years. In 1884 he entered the Earl's Leicestershire gardens at Buckminster, and became head gardener in 1896, where he was especially successful in growing and exhibiting Muscat of Alexandria Grapes. In addition to care of the gardens, he was responsible for the woodlands and carried out extensive forestry plantings. In 1909 he took charge of the beautiful Ham House gardens at Petersham which he controlled with conspicuous success. During the war, large quantities of vegetables were grown, and the extensive lawns were devoted to hay production. So soon as the national need was over Mr. Knowles quickly restored the lawns and gardens to their previous beauty. Mr. Knowles leaves a widow and one son who, now a telegraphist at the Kingston Post Office, served in the Royal Engineers during the war and was engaged in laying telephone wires in the African jungle. His youngest son was killed at Jutland.

TRADE NOTE.

EXPORTING PLANTS TO NEW ZEALAND.

In accordance with the promise made in our issue of May 15, Mr. A. Wilkinson, Hon. Secretary of the New Zealand (Nelson) Alpine and Rock Garden Society writes as follows: "Our Society has just received from England a collection of over four hundred plants for the Nelson rock garden. The consignment was packed on January 5, and did not arrive until March 22, so the plants were practically in the dark for eleven weeks. Despite this, however, they were in splendid condition, and in the whole shipment only three died. This excellent result must be a record, and proves clearly that with proper care in packing and shipping it is possible to send nearly any kind of plant to New Zealand. The most important points are proper packing and shipping, and it is just as well to give some particulars of the shipment under notice.

The plants came from three nurseries, *i.e.*, Messrs. Bakers, Mr. Clarence Elliott and Mr. Amos Perry. Strange to say, all had adopted different methods of packing. Those from Messrs. Bakers were splendidly packed in layers, with plenty of Sphagnum-moss, each plant well tied and labelled. They consisted chiefly of Primulas, Funkias, Hemerocallis and Irises, and only one plant died on the journey. I believe many plants would not survive the use of wet moss, as they would rot away, especially Saxifrages, Dianthi and others.

In Mr. Clarence Elliott's consignment the plants were all packed in wet moss, but each one was sent in its flower pot. These came through well, but this method is a very expensive one, as the freightage charged is far greater, and there is a risk of the pots working loose, plants falling out, and labels getting mixed.

The third lot was from Mr. Amos Perry's plant farm, and if this is not an exception, his method of packing is the best, judging by results. Every plant was packed in thin wood shavings, wrapped round and round and well tied; the name label was wrapped in paper and fixed firmly to each plant. No Sphagnum moss was used, and the pots were just laid in a box without divisions; out of two hundred plants only one was dead on arrival. The plants were strong, with plenty of roots, and were, principally Aubrietias, Campanulas, Saxifrages, Sedums, etc. The cases had side ventilations which is very necessary.

Care in packing is useless, however, unless proper shipping conditions are adopted. The consignor should pack only just in time to catch the steamer decided upon, and the steamer should be one that will make its first call at the town nearest the destination. The shipment in question was sent by ss. Port Caroline, which made its first call at Auckland, and it was delayed there a fortnight, whereas, if sent direct to Wellington, delivery would have been made three weeks earlier.

The most important point of all is proper arranment with the steamship company. If the cases are placed with ordinary cargo it means there will be complete loss. A member of our Society had £38 worth of plants shipped with cargo, and practically every plant died. The cases must be placed in the vegetable room, or some similarly cool place on the steamer, under proper supervision. It is more expensive to send this way, but it is still more expensive to lose all the plants. The freight insurance on, say, four hundred plants, comes to about £5, which is only threepence per plant. We find that, with all charges, it costs about sixpence per plant to land them in New Zealand. Finally, plants are best despatched about January, as they arrive when the weather is getting cooler in the Dominion.

ANSWERS TO CORRESPONDENTS.

BROKEN TULIPS.—*F. I.* Most of the Darwin Tulips are apt to "break" on occasion into more or less irregularly-flamed or feathered flowers. Those who cultivate Darwin Tulips extensively believe that deep planting is one means of preventing this curious variation from the typical form. Branched Tulips were described and illustrated in *The Gardeners' Chronicle* of May 15, 1909 (p. 317).

FOLIACEOUS PEAR FLOWERS.—*W. S.* The flowers in which some petals and the calyx segments have become foliaceous provide evidence that the floral parts have been evolved from the foliar ones.

NAMES OF PLANTS.—*Reader, Stoke-on-Trent.* 1, Pyrus japonica var.; 2, P. j. var. atropurpurea; 3, too withered to identify; 4, Cotoneaster Henryana; 5, Polygonum baldschuanicum; 6, P. cuspidatum; 7, too withered; 8, Potentilla fruticosa. *Mrs. M. W.* Cytisus monspessulanus, an entirely different plant from the "Genista" (Cytisus racemosus) grown for greenhouse purposes. The former is a native of Southern Europe, the "Genista" comes from the Canary Islands. *G. F.* Malformed flowers of a double Daffodil.

PEAR TREES UNFERTILE. *W. E. B.* On the evidence given we cannot state with any certainty why the tree fails to fruit. As there are Pears, presumably of several different varieties in the vicinity, it is unlikely to be a matter of pollenation. It is possible that the tree, although of fair age, is still too vigorous to be fruitful. If this appears to be the case, the effect of root-pruning might be tried.

TULIPS FAILING.—*M. L. F.* Your Tulips are suffering from a very bad attack of Sclerotinia parasitica, and mite and eelworm are also present. We believe, however, that the eelworm is the secondary and not the primary cause of the trouble. The bulbs are far too badly diseased to be cured by any specific, and your best plan is to lift and destroy them, sterilise the soil, and not plant Tulips thereon again for two or three years.

TULIPS WITH BRANCHED STEMS.—*E. F. G.* Although Tulips with branched stems are not commonly seen in gardens, they are by no means rare; indeed, there is a strain in which branching, or rather, the production of several flowers on one stem, appears to be fixed.

TOMATOS LACKING COLOUR.—*P. C. G.* In our opinion the lack of colour in your Tomatos is due to the need of potash in the soil. This can be supplied by a top-dressing of wood-ash that has not been leached, or by one or two small dressings of sulphate of potash.

Communications Received—S.W.T.D.—W. C. W.—J. H. and C.—W. H. J.—N. M.—W. F. S.—J. A. P.—A. A.—T. A. S.—G. F. G.—G. D. A.—B. L.—Swansea.—C. M. G.—M. C.

MARKETS.

COVENT GARDEN, Tuesday, May 24th, 1927.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d.	s. d.
Adiantum cuneatum per doz.	10 0	12 0
—elegans	10 0	15 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus	12 0	18 0
—Sprengeri	12 0	18 0
Aspidistra, green	36 0	60 0
Asplenium, doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Boronia heterophylla, 48's, per doz.	36 0	48 0
Cacti, per tray —12's, 15's	5 0	7 0
Cinerarias, 48's, per doz.	12 0	15 0
Crotons, doz.	30 0	45 0
Cyrtomium	10 0	25 0
Erica Cavendishii, 48's, per doz.	36 0	42 0
—coccinea minor, 48's, per doz.	24 0	27 0
—persoluta, 48's, per doz.	24 0	30 0
Fuchsias, 48's, per doz.	15 0	18 0
Heliotropes, 48's, per doz.	15 0	18 0
Hydrangeas, pink, 48's, per doz.	24 0	36 0
—blue, 48's, per doz.	30 0	36 0
—white, 48 s, per doz.	24 0	30 0
—larger sizes, each	4 0	5 0
Marguerites, 48's, per doz.	21 0	24 0
Mignonette, 48's, per doz.	18 0	21 0
Nephrolepis in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	30 0	48 0
—60's	15 0	18 0
Pelargoniums, 48's, per doz.	12 0	15 0
—Zonal, 48's, per doz.	9 0	10 0
—Ivy-leaf, 48's, per doz.	12 0	18 0
Pteris, in variety	10 0	15 0
—large, 60's	5 0	6 0
—small	4 0	5 0
—72's, per tray of 15's	2 6	3 0
Roses, Polyanthas, 48's, per doz.	18 0	24 0
—Rambler, large plants, each	5 0	15 0
Spiraea, white, 48's, per doz.	21 0	40 0
—pink, 48's, per doz.	27 0	30 0
Stock, white, 48's, per doz.	12 0	15 0
—coloured, 48's, per doz.	10 0	12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	6 0	8 0
cuneatum, per doz. bun.	4 0	6 0
Anemone St. Brigid, per doz. bun.	2 6	3 0
Asparagus plumosus, per bun., long trails, 6's	2 0	2 6
med. sprays	1 6	2 6
short ,,	0 9	1 3
—Sprengeri, bun. long sprays	2 0	2 6
med. ,,	1 0	1 6
short ,,	0 6	1 9
Carnations, per doz. blooms	2 0	3 0
Cornflower, blue, per doz. bun.	3 0	4 0
Croton leaves, per doz.	1 9	2 6
Ferns, French, per doz. bun.	10 0	12 0
Forget-me-not, per doz. bun.	4 0	8 0
Myrtle, green, per doz. bun.	1 6	2 0
Stock, double white, per doz. bun.	6 0	12 0
Gardenias, per doz. blooms	3 0	4 0
Gladiolus, Blushing Bride, per doz. bun.	12 0	15 0
—Peach Blossom, per doz. bun.	12 0	18 0
— The Bride, per doz. bun.	12 0	18 0
Gypsophila, white, per doz. bun.	8 0	10 0
Heather, white, per doz. bun.	6 0	9 0
Hydrangea, white, per doz. bun.	36 0	42 0
—coloured, per doz. bun.	30 0	36 0
Iceland Poppies, per doz. bun.	2 6	3 0
Iris, Spanish, per doz. blooms—		
—blue	1 0	1 6
—yellow	1 6	2 0
—mauve	1 0	1 6
—white	1 6	2 0
Ixia, various, per doz. bun.	2 0	3 0
Lapagerias, per doz. blooms	4 0	5 0
Lilium longiflorum, long, per doz.	2 6	3 0
—short, doz. blooms	2 0	2 6
Lily-of-the-Valley, per doz. bun.	30 0	36 0
Marigolds, per doz. bun.	5 0	6 0
Narcissus, per doz. bunch—		
—double white	6 0	7 0
Orchids, per doz.		
—Cattleyas	24 0	36 0
—Cypripediums	6 0	8 0
Pyrethrum, per doz. bun.—		
—double white	6 0	10 0
—single red	4 0	6 0
—single pink	3 0	4 0
Richardias		
—yellow, per doz. blooms	24 0	30 0
Roses, per doz. blooms—		
—Columbia	3 0	4 0
—Richmond	2 6	3 6
—Madame Butterfly	2 6	3 6
—Golden Ophelia	2 0	3 0
—Mrs. Aaron Ward	1 6	2 6
—Madame Abel Chatenay	2 0	3 0
Roses, per doz. blooms—		
—Hoosier Beauty	2 6	4 0
—Liberty	3 0	4 0
—Molly Sharman Crawford	2 0	3 0
—Premier	3 0	4 0
Smilax, per doz. trails	5 0	6 0
Statice sinuata, mauve, per doz. bun.	3 0	4 0
Stephanotis, per 72 pips	3 0	3 6
Stock, per doz. bun.—		
—double white	6 0	12 0
—double mauve	12 0	18 0
—double pink	12 0	18 0
Sweet Peas, in variety	6 0	12 0
Tulips, per doz. single—		
— —yellow	9 0	12 0
— —scarlet	9 0	10 0
—Darwin, red	8 0	10 0
— — pink	8 0	10 0

REMARKS.—Double white Narcissi and White Stocks are retaining the prices quoted last week some very fine spikes of mauve Stock is being offered. Except for a small consignment of Narcissus Poeticus from Scotland, supplies from other sources have finished. Other subjects which have increased in quantity during the past week are Cornflowers, Coreopsis, single and double Pyrethrums including more white, which meets with a good demand, also Iceland Poppies; Gladioli are much improved in quality and include some Giant Salmon and Primulinus sorts. The prices for the best pink varieties of Carnations are a trifle firmer, those of Cupid, Northcliffe, Eileen Lowe, Delight, Mrs. Hemus, Laddie, Winsor and the scarlet varieties Faith Dutton, Spectrum, Aviator and Crimson Topsy, being in demand. Roses were a trifle easier in price to-day, but the best quality blooms in red and white are below requirements, pink and yellow sorts being more plentiful. Some very fine Paeonies are now arriving from the South of France, also some white Pinks and Statice sinuata. Statice Suworowii and Coreopsis are the latest to arrive from home-growers.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, Australian—		
—Granny Smith	25 0	30 0
—Dunn's	15 0	16 0
—Cox's Orange Pippin ½-cases	22 0	35 0
—Jonathan	15 0	16 0
—King David	14 0	15 0
—Ribston Pippin	14 0	15 0
—Cleo	15 0	17 0
—Others	12 6	13 0
Apples, New Zealand—		
—Cleo	18 0	20 0
—Cox's	32 6	40 0
—Delicious	15 0	16 0
—Alfreston	13 0	14 6
—Dunn's	15 0	16 0
—Jonathan	16 0	17 0
Apricots, Spanish, per crate	10 0	12 0
Bananas	16 0	24 0
Cherries, French, per crate	6 0	7 0
Figs, per doz,	5 0	12 0
Grape Fruit— per case		
—Blue Goose	38 0	42 6
—Jamaica	32 6	35 0
Grapes, English		
—Hambro, per lb	3 6	5 0
— Canon Hall	10 0	15 0
Grapes, South African, per case		
—Waltham Cross	8 0	12 0
—Almeria	8 0	10 0
—Raison Blanc	10 0	12 0
Grapes, Australian—		
—Ohanez, per ½-bushel	18 0	20 0
Lemons, Messina Boxes	10 0	18 0
—Naples, per case	20 0	26 0
Melons, each	3 0	7 0
Canteloup, each	5 0	8 0
Oranges, per case—		
—Jaffa	20 0	22 0
—Californian Navel	—	30 0
—Denia	24 0	30 0
—Murcia	20 0	40 0
Nectarines, doz.	18 0	30 0
Peaches, per doz.	10 0	24 0
Pears, New Zealand—		
—Nelis	19 0	22 6
—W. Cole	—	15 0
—Josephine de Malines	21 0	25 0
—Beurré d'Anjou	—	6 6
Pears, Australian—		
—Winter Nelis	8 0	9 0
—Beurré Bosc	6 0	8 0
—Josephine de Malines	8 0	10 0
Pines, case	21 0	40 0
Strawberries (forced)—		
—special, per lb	5 0	8 0
—best, per lb	3 0	4 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus—		
—Cavaillon	0 8	0 10
—Lauris	1 0	1 6
—Worcester, extra special	4 0	6 0
—special	2 0	3 0
Beans, Forced—		
—Special	1 3	2 0
Beans, Madeira	3 6	4 6
Beets, per cwt.	5 0	6 0
Cabbage, per doz.	2 0	2 6
Carrots, per ½-bag	4 0	6 0
Cauliflowers—		
—English, per crate	4 0	6 0
Cucumbers, doz.	4 0	5 6
—Flats, 3, 3½, 4 doz.	14 0	17 0
Leeks, per doz.	2 0	2 6
Lettuce, round, per doz.	0 6	1 0
—long	1 0	6 0
Mint, forced, per doz.	1 0	2 0
Mushrooms		
—cups	1 6	2 6
—Broilers	1 3	1 6
Onions—		
Valencia	10 6	11 6
—Egyptian	—	12 0
Parsnips, per cwt.	4 0	4 6
Peas, per lb.	1 0	1 6
—French, per bag	6 0	7 0
Potatos—		
—King Edward— ton	180s.	200s.
—others, ton	120s.	150s.
Potatos, New—		
—Guernsey per cwt.	17 0	17 6
—Spanish, cwt.	10 0	12 0
—St. Malo	12 0	14 0
—Jersey	—	17 0
—Scilly per cwt.	17 0	17 6
—Azores	16 0	18 0
Radishes, per doz.	1 0	2 6
Rhubarb, natural	2 0	3 0
Savoys, per tally	8 0	12 0
Tomatos, English—		
—pink,	10 0	12 0
—pink and white	11 0	12 0
—white	—	9 0
—blue	8 0	9 0
—Canary Island	14 0	25 0
Turnips, per cwt	4 0	4 6

REMARKS.—Business in Covent Garden is fairly active, there being a good demand for the considerable quantities of produce available. Apples from Australasia are a popular feature, as are Grapes and Pears from the same source. A few Grapes are still arriving from the Cape and are selling well. English hothouse fruits are selling freely, although prices generally are rather high, and such fruits as Peaches, Nectarines, Grapes, Melons, Figs and Strawberries are always in demand during the London "season." Tomatos are more plentiful and Cucumbers slightly cheaper. Moderate quantities of Gooseberries are now being marketed and maintaining a very good price level. Hothouse vegetables are selling well, and English Asparagus is a fairly good trade. Salads are a poor trade. Mushrooms have developed remarkably well and quantities are such that prices are inclined to be low. New Potatos from France, Jersey and Spain continue to arrive in quantity, and prices all round are lower.

GLASGOW.

Price movements were narrowed during the past week in the cut flower market, but the general tendency was towards a higher level of values. Carnations were worth 2/6 to 3/6 per dozen; pink Roses, 3/- to 4/- per dozen; white Roses, 2/- to 3/-; red Roses, 1/6 to 2/6. Pheasant Eye Narcissus, 2/- to 3/-; Anemones, 3/- to 4/-; Guernsey Irises, 2/6 to 3/6 per dozen of 6's; English Irises, 9d. to 1/6 per bunch (12's); Sweet Peas, 8d. to 10d.; Clara Butt Tulips, 3d. to 6d. (6's); Paeonies, 8d. to 9d.; Lily-of-the-Valley (outdoor), 3d.; Lilium longiflorum (Harrisii), 2/6 to 3/6; and Richardias (Arums), 3/- to 4/-.

Bedding plants were dearer. Violas made 2/- to 2/6 per box. Coltness Gem Dahlia, 4/6 per dozen; Sweet Peas and other annuals, 1/3 to 1/6; Spiraeas and Marguerites, 1/- per pot.

The first consignment of fruits from New Zealand reached the market on Friday. Winter Nelis Pears sold at 8/- to 9/- per tray. Jonathan Apples realised 17/6 per case; Delicious, 18/6, and Dunn's Favourite, 16/6; while Canadian Winesap Apples averaged 12/6, and Newtown Pippin, 17/6. Valencia Oranges further advanced in price, 300 counts making 22/- to 25/- per case; 360's, 17/6 to 18/6; and 240's, 26/6 to 28/-. Grape Fruits were scarce round about 35/- per box.

In the vegetable section Scotch Tomatos averaged 1/6 per lb., and English and Guernsey Tomatos, 1/-. Cucumbers sold at 5/- to 8/- per dozen; Cauliflowers were worth 5/6; Lettuce, 2/6 per crate; Carrots and Turnips, 1/- per bunch; Mint, 3d. to 6d. per bunch and Maltese Potatos, 16/- to 18/- per cwt.

SCHEDULES RECEIVED.

CHARFIELD FETE AND FLOWER SHOW.—Exhibition to be held on Saturday, August 20.—Secretary, Mr. S. Benson, The Nurseries, Charfield.

NEWPORT AND DISTRICT HORTICULTURAL SOCIETY.—Summer Rose Show in aid of the Royal Gwent Hospital, to be held at Stelvio, Bassaleg Road, Newport (Mon.), on Thursday, June 30.—Secretary, Mr. H. G. Brooks, 74, Halstead Street, Newport.

SOUTHPORT FLOWER SHOW.—Exhibition to be held on Wednesday, Thursday and Friday, August 24, 25 and 26.—Secretary, Mr. T. Wolstenholme, Town Hall, Southport.

LEEDS PAXTON SOCIETY.—Thirty-third Chrysanthemum Show, to be held on Friday and Saturday, November 11 and 12, in the Town Hall, Leeds.—Secretary, Mr. F. Stabler, The Gardens, Cookridge Hall, Horsforth, Leeds.

PEEL PARK FLOWER SHOW AND GALA.—Annual Show, to be held on Friday, Saturday and Monday, July 29 and 30 and August 1.—Secretary, Mr. J. Richardson, Buile Hill Park, Salford.

PETERBOROUGH AGRICULTURAL SOCIETY.—Summer show to be held on Tuesday, Wednesday and Thursday, July 12, 13 and 14.—Secretary, Mr. Robert Bibby, Agricultural Offices, Cross Street, Peterborough.

CATALOGUES RECEIVED.

BARR AND SONS, 11, King Street, Covent Garden, W.C.2.—Seeds.

G. BECKWITH AND SON, The Nurseries, Hoddesdon, Herts.—New Roses. (Wholesale.)

CHARLES TURNER, The Royal Nurseries, Slough.—Dahlias.

GARDENING APPOINTMENTS.

Mr. John Dewhurst, for the past seven years gardener to the EARL OF ALBEMARLE, Quidenham Hall, Norwich, and for six-and-a-half years gardener to C. E. STRACHAN, Esq., Heacham Hall, Kings Lynn, and previously foreman at Lowther Castle, as gardener to ARTHUR S. BOWLBY, Esq., Gilston Park, Harlow, Essex. (Thanks for 2/6 for R.G.O.F. Box.—EDS.).

Mr. H. Wheeler, for many years gardener to the late Mrs. JENNER, Wenvoe Castle, near Cardiff, and previously gardener to the MARQUIS OF WINCHESTER, Amport St. Mary's, Andover, as gardener to FRANK C. MINOPRIO, Esq., Avening Court, Gloucestershire.

Mr. Percy Capp, for eight-and-a-half years general foreman at Nostell Priory Gardens, Wakefield, as gardener to Capt. FIELDEN, Grimston Park, Tadcaster, Yorkshire.

IF THERE IS REAL QUALITY AND GOOD HONEST SERVICE behind your advertisements, they will pay, and pay handsomely, whatever the initial outlay may be.

THE
Gardeners' Chronicle

No. 2110.—*SATURDAY, JUNE* 4, 1927.

CONTENTS.

Agriculture, the transition of 388
Aldenham, damage by frost at 398
Alpine garden—
  Onosma albo-roseum 392
  Veronica gentianoides 392
Arnold Arboretum, changes at the ... 389
Books, notices of—
  Frost and Light ... 396
Bolting, the problem of 398
Brussels International Horticultural Exhibition 389
Cabbage root fly ... 397
Children's Gardens Fund... 387
Curtis, Mr. C. H., French honour for... 389
Drought, the spring ... 387
Forestry in the Scottish Highlands 388
"Gardeners' Chronicle" seventy-five years ago 389
Gladiolus, the... ... 392
Iris garden—
  Planting Flag Irises 392
Mottet, Mons. J. S. ... 388
Obituary—
  Barnard, J.... ... 404
  Huggins, H. T. ... 404
  King, David ... 404
Orchids, the Rosslyn... 387
Playing Fields, an appeal for more ... 387
Ranunculus, Palestine and Florentine ... 392
Sales of diseased plants 396
Silver Cup for Paeonies 389
Snell Memorial Medal, award of the ... 388
Societies—
  Guildford and District Gardeners'... 404
  Royal Horticultural 398
  Société Nationale d' Horticulture de France 401
  Vale of Evesham Asparagus Growers' 404
Strawberry plants, deterioration of ... 398
Strawberry plants, why they are failing ... 387
Trees and shrubs—
  Cercis Siliquastrum 393
  Salix vitellina pendula 393
Vegetable garden—
  Brussels Sprouts ... 397
Violas, a revision of... 393
Ward's, Mr. F. Kingdon, ninth expedition in Asia... ... 394
Week's work, the ... 390
Welsh garden, notes from a 396
Wilson Memorial Prize 388

ILLUSTRATIONS.

Aster alpinus var. Shirley 393
Chelsea Show, Hydrangeas and formal garden at 399, 400
Daphne aurantiaca 389
Mottet, Mons. J. S., portrait of 388
Paris Show, views of the... ... ... 401, 403
Silver Work of Art presented to the Aalsmeer Growers by the R.H.S. 391
Ward's, Mr. Kingdon, expedition, views of ... 394, 395

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 58.1°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 1, 10 a.m. Bar. 29·75. Temp. 57°. Weather, Dull.

The Spring Drought.

THE good gardener combines and practises the philosophies of the Stoics and the Epicureans. Like the former, he "looks on tempests and is never shaken," and like the latter, whose doctrine was propounded in an Athenian garden, the gardener is adept in finding satisfaction in the simplest of pleasures. The former has been known to grumble, but who ever heard of a good gardener doing such a thing? At his worst he but expresses a slightly plaintive regret that the things he is showing you are past their best, or that the weather has destroyed not only his Plum blossom, but many of his fondest hopes. This fund of philosophy has, it is true, been drawn upon very heavily during the past months. For after the havoc of the late frosts the rough winds which shake the darling buds of May have not infrequently consummated the unfruitfulness of his orchards. How tortuous these late drying winds have been every garden demonstrates. The spots which seem to be warm and sheltered, as indeed they are ordinarily, have suffered most. Sweeping round shelters, the winds have dried and shrivelled the Apple blossom on trees which seemed most protected, whilst on others with a freer exposure the blossom has set with profusion. In this season the vegetable garden, except in well-matured and well-enclosed places, shows itself at a standstill, yet it is doubtful if there ever was a season when flowering shrubs have blossomed more profusely. The Ceanothuses in particular delight every eye with their azure radiance and all the Brooms, white, yellow, particoloured and pink, are weighed down with their blossom. Azalea amoena, too, has flowered better than ever before—or so it seems to us—as though to make amends for the sad sight offered by the tender Rhododendrons after the late frost. Other brilliant exponents of beauty are Rosa Hugonis, which seems to find wind and drought to its liking; the best of all the Veronicas, the soft mauve-tressed V. Hulkeana; and, regardless of the cold winds, the Rock Roses produce, day by day, a wealth of blossom, the petals of which litter the paths when the day of flowering is done. Waterside Primulas on the other hand—at all events, those that were put out recently—have hastened prematurely to form puny flower heads, so that the waterside garden is robbed of one of its main glories. Gunneras, on the other hand, though their early leaves were turned black by the frost, are producing a new crop of more brilliant green than is usual. Even the Wistaria which festoons the bridge in the waterside garden which we ourselves are well acquainted with, though most of the blossoms were reduced to sodden masses, now dried by the winds to chaff, are throwing out a second set of flowers, this, it is true, but an earnest of their "will to flower." Caterpillars are, of course, finding the occasion for devastation, and fruit trees which were sprayed in winter with carbolineum, and again in spring with lime-sulphur and nicotine, have every young growth contorted by these pests. The extreme floriferousness of established shrubs and trees and the cessation of vegetative growth of young plants which afford such a striking contrast in the garden are, after all, not so surprising. With the cold wind blowing, and the surface soil dry, young plants in spring soon cease to try to grow. Their stomata shut up, little or no water passes from root to stem, and with the damming of the transpiration stream, growth ceases. But flowers of shrubs seem able to steal from the wood the water that they need for their unfolding and so they blossom in spite of the dry weather. The hoe is the only magician's wand that may avert the worst of calamity during such seasons as these, and where it is wielded constantly, young plants may still be induced to grow a little. Nevertheless, in spite of all we may do, our garden work must inevitably be behind-hand; for there has been no planting-out time, and now we must wait, it may be till autumn, for filling up the bare places in the rock garden and completing the borders. Some districts, of course, have been lucky, and their rain has been sufficient to set growth going, but, in general, the flurry of showers has done nothing at all except to arouse and to dash our hopes that the long spring drought should be at last ended.

Need for More Playing Fields.—H.R.H. the Duke of York, President of the National Playing Fields Association, has issued an appeal for funds to enable the Association to provide more playing fields, stating that "Careful inquiries made in different parts of Great Britain by the Association and its county branches reveal a deplorable shortage of playing fields for the young people of the country." The National Playing Fields Association is striving to make sure that the poorer boys and girls in every city, town and village shall be able to enjoy as a natural right some of the enormous advantages, in this matter of games and playing fields, which accrue to other boys and girls without question, as a matter of course, and to achieve this purpose the Association and its affiliated County and City Associations appeal for the sum of £1,000,000 and land to convert into playing fields. The London and Greater London Committee states that if funds were forthcoming hundreds of acres of land, ideally suited for playing fields in and around London, could be immediately acquired, to the lasting benefit of the youth of London and Greater London. In fact, the definite opportunity presents itself of acquiring areas in different parts amounting in all to some 350 acres at a cost, including laying out, of approximately £160,000. Cheques and money orders should be crossed and made payable to the National Playing Fields Appeal and sent to the Midland Bank, 5, Threadneedle Street, London, E.C.3.

The Rosslyn Orchids.—The Rosslyn collection of Orchids founded by the late Mr. H. T. Pitt, at Stoke Newington, and maintained by him in splendid condition over a long period of years, is to be disposed of by the executors at a date to be announced in due course. This sale will provide Orchid specialists with an unusually good opportunity of acquiring many rare and interesting species as well as fine hybrids, notably Odontoglossums and Miltonias.

Illness of Mr. Alfred Gray.—The many friends of Mr. Alfred Gray, of Messrs. James Gray, Chelsea, will be sorry to learn that he has had to undergo an operation that will probably keep him away from business for some weeks.

Children's Gardens Fund.—In response to Sir Johnston Forbes-Robertson's recent broadcast appeal on behalf of the London Children's Gardens and Recreation Fund, the sum of £178 11s. 9d. has been contributed. Sir Johnston Forbes-Robertson, in the course of his appeal, said the aim was to give each school in the more congested districts a space of garden where, out of the school hours, the children could be in safety. So far they had eight such gardens, containing plots for about 700 children. They hoped to have plots for 1,000 children next year. "By teaching them gardening," he said, "we keep them out of the streets and show them something of the wonders of nature, at the same time giving them the keen joy of possession and the pride of taking home to mother the vegetables and flowers they have grown themselves."

Why Strawberries are Failing.—In view of the many complaints of growers in all parts of the country of the deterioration of their Strawberry plants and the poorness of the crop, the remarks of Mr. L. N. Staniland, Advisory Entomologist at the Long Ashton Research Station, delivered at the Shire Hall, Hereford, on May 18, may be of interest to our readers. He is of the opinion that most of the trouble is due to poor selection of runners and methods of cultivation. He considered that growers destroyed many of the young roots or prevented them from forming when they cleaned the beds after the berries had been gathered. In this process soil was pulled away from the plants, the young, delicate roots were exposed to the air, the tips were killed, and other roots prevented from developing. He advised growers, after cleaning the beds immediately after cropping, to earth up the crowns about an inch. Mr. Staniland stated that seventy per cent. of the root system in the Strawberry was found in the top three inches of soil, and of the roots in this three inches about ninety per cent. were active feeding roots. When the soil was worked deeply close up to the plants late in the autumn, these new roots were damaged, and when the roots were damaged or failed to form in August "small leaf" resulted, since the plant was not able to gather food from the soil and was reduced to living on its capital. Damage to the main crown, water-logging, and excessive drought, were also shown to be responsible for a definite type of "small leaf." Mr. Staniland emphasised the importance of August planting, and stated that September-planted runners were not nearly so good; as the date of planting came nearer to December, the difference was more marked. At Long Ashton, August-planted runners gave a crop of two tons to the acre, whereas September planting only gave half-a-ton. With regard to diseases, including Red Plant and Cauliflower disease, he advocated the growing of a strain of plants which were not liable to the disease, and the rogueing of the parent plants before any runners were taken from them. Before planting, he advised dipping the runners in nicotine and soap solution (half-ounce nicotine —98 per cent.—to ten gallons of water), which will ensure freedom from aphis during the first root-forming period. If the plants became infested with aphis afterwards, subsequent sprayings or dustings are necessary. Of varieties, he stated that Lord Overton suffered little from aphis attack, and Madame Kooi suffered most.

Dr. Wilson Memorial Prize.—This prize has been founded in commemoration of the work in plant-breeding by the late Dr. John Wilson, of St. Andrews. The prize will be to the value of twenty guineas, and awards will be made from time to time as money is available. The Dr. Wilson Memorial Prize will be offered for work done in Scotland in producing seeds or plants which the Directors of the Scottish Society for Research in Plant Breeding consider to be of value to agriculture in Scotland. The first award will be made towards the end of the current year, and applications for the prize should be sent to the Directors of the Society, Edinburgh, on or before October 1.

The Transition of Agriculture.—This is the title of an interesting lecture delivered by Professor C. S. Orwin, M.A., Director of the Agricultural Economics Research Institute, University of Oxford, before the members of the Royal Society of Arts, on March 23. The lecturer stated that transition periods in Agriculture are to be noted all through its history, and the changes introduced in farming practice at these times have been due, all of them, to the need for industrialising the industry. The earliest is represented by the enclosure of the open fields. He dealt with various transitions down to the present time, and showed that on the accession of Queen Victoria the face of the country had undergone an almost complete change. The great fields, farmed mostly in half-acre strips for hundreds of years, as can still be seen surviving in one or two places in England to-day, had given place to the compact fields and farms as they now appear. The development of railways in the New World, bringing vast areas of land within reach of the ports, together with modern methods of agriculture, caused a steady decline of the products of arable land in this country, resulting in driving no fewer than four thousand acres of land out of arable cultivation. During the Great War much of this grass land was once more brought under the plough, but seven years following the cessation of hostilities has sufficed to put it back again, and the position to-day is the same as that represented by 1914, with a tendency for still more land to revert to grass. Professor Orwin stated that agriculture is the second largest industry in the country, and finds employment for some 550,000 workers, but there is a big drift of labour to the towns, for the farmer cannot compete with the employer of industrial labour, and the low economic status which agriculture affords is steadily driving more and more of the best stamp of rural workers to seek other outlets, if not for themselves, at least for their children. According to Professor Orwin, direct State aid for agriculture, either in the form of protection or subsidies, would settle the problem, as is shown in the case of pork, which has enjoyed absolute protection in the endeavour to stamp out foot and mouth disease, and in the Sugar-Beet crop which is admittedly the most profitable arable crop, as a result of the subsidy to home-grown sugar. "There are two possible directions," he said, "in which the bulk of the agriculture of this country may proceed." The first of these is the steady multiplication of small holdings, the second the development of large scale production, either on light arable farm lands, where the work will be done mainly by machinery, or on strong land grass farms where the labour will consist entirely of stockmen and shepherds. The transition of the present time would be to bring all existing light-land arable farms and all the light-land grazings capable of being ploughed into units large enough to admit of mechanical cultivation in the highest degree.

M. Joseph S. Mottet.—Among the most notable and successful raisers of Bearded Irises, Mons. J. S. Mottet occupies a very high position, and this position has been recognised in France, Great Britain and America; indeed, our own Iris Society has especially honoured him in appreciation of his work in this genus of handsome garden plants. As M. Mottet has been a valued corespondent of *The Gardeners' Chronicle* for well over a quarter-of-a-century, it is a pleasure to publish his portrait and a brief account of his horticultural history. Born in Paris sixty-six years ago, his school days were followed by several years spent in the South of France, where he acquired an all-round knowledge of gardening before entering the services of Messrs. Vilmorin-Andrieux et Cie., in 1880, as assistant in the firm's Paris seed shop. Here he remained until 1883, when he came to England and became a student in the old Chiswick Gardens of the Royal Horticultural Society under Mr. A. F. Barron. Here, and during visits to other gardens, he added to his experience and became acquainted with English methods and the English language. He then returned to Messrs. Vilmorin-Andrieux et Cie., and having meanwhile acquired a good knowledge of botany, he was sent to the Verrieres establishment to take charge of the experimental work and the plant collections, where much useful work was, and still is, carried out in the improvement of economic and ornamental plants, especially Wheat, Peas, Beet, Irises and Gladioli. As assistant to the late M. Philippe de Vilmorin, M. Mottet enlarged that gentleman's collection of trees, shrubs and herbaceous plants in his own private park, created a rock garden for him, added much material to the herbarium and assisted in M. Vilmorin's first experiments in genetics. M. Mottet also laid the foundation of a new and important Arboretum in the centre of France, which he still manages. Before going to Verrieres, M. Mottet had undertaken the translation into French of Nicholson's *Dictionary of Gardening*, a work that was enlarged to five volumes, and which he finished in 1899. As an author, he has contributed many useful works on horticultural subjects, notably his *Guide Pratique le Jardinage* (1894); *Les Rosiers* with Mons. Cochet, (1897); *Les Clematites*—with Mons. G. Boucher, (1898); *Les Oeillets* (1898); *Les Coniferes et Taxacées* (1902); *La Mosaiculture et l'Ornementation Florale* (1904); and *Les Primevères* (1913), but M. Mottet's most important work is *Les Arbres et Arbustes d'Ornement*, a bulky volume of nearly six hundred pages and over two hundred illustrations, which appeared two years ago. M. Mottet is an Officier du Mérite Agricole, and in recognition of his work as a teacher and lecturer in gardening to country societies he recently received the distinction of "Les Palmes Académiques." M. Mottet's life, as we have shown, has been a full and useful one, but with all his accomplishments he combines modesty, sympathy and generosity, and these fine qualities have endeared him to several generations of the Vilmorin family and their employees.

M. JOSEPH S. MOTTET.

Aldenham House Gardens.—The gardens of Aldenham House, Elstree, will be again open to the public, by kind permission of the Hon. Vicary Gibbs, on the Saturdays of July, August and September (other than Saturday, July 16, the date of the Elstree Floral Fête, when admission will be by payment at the gates); also on August Bank Holiday (Monday, August 1), on the same conditions as in previous years, *i.e.*, that dogs are not admitted, and children are under the control of adults. The gardens are being opened on Whit Monday, June 6, in connection with the Queen Alexandra Memorial Fund, for which purpose an entrance fee of one shilling per person will be made.

Award of the Snell Memorial Medal for 1926.—The Council of the National Institute of Agricultural Botany has awarded the Snell Memorial Medal for the year 1926 to Sir Matthew Wallace, Bart. The medal is given annually to mark eminent work in the sphere of Potato husbandry and it has been awarded to Sir Matthew Wallace in recognition of his distinguished services in the improvement of the cultivation of the Potato.

Forestry in the Scottish Highlands.—Under the auspices of the Highland Branch of the Royal Scottish Arboricultural Society, whose headquarters are in Inverness, a large party visited, on Saturday, May 28, Mr. Dyson Perrins' beautiful estate of Ardross in Ross-shire. There was a large company, including foresters from Inverness-shire, Ross-shire and Morayshire, Government forestry experts, and many others interested in the subject. Mr. George Anderson, head forester, Ardross, conducted the party, and the expectations of the visitors to this fine estate where so much has been done for forestry, were more than realised. Among the first places visited were seventy experimental quarter-acre plots containing seventy different varieties of Conifers planted in 1910. Great interest was evinced in the experiments, and very valuable information was gleaned as to what may be done for forestry in the Highlands of Scotland. On every side the great work done on Ardross evoked the warmest admiration. At one stage of the proceedings, Viscount Novar addressed the company, reminding them that it was sixty years since he had first visited Ardross, when vast improvements were being carried out. No great work of reclamation in the Highlands equalled the work done by Sir Alexander Matheson when he was proprietor of Ardross, and it is pleasing to note how worthily Mr. Dyson Perrins continues the good work. "My experience of Government work," proceeded Viscount Novar, "was that it compared very unfavourably with the work carried out by individuals," and at the present time, considering the financial position of the country, he thought the less of the Government work and the more of individual work the better. However, the one industry carried on by the State at all well was forestry. He considered a proportion of the country should be under a national scheme, because a national standard was set. In Germany, he reminded his hearers, one-third of the forestry work was done by private owners, one-third by the Government, and one-third by the local authorities. He would not like to see much forestry land in this country under the local authorities. In Austria, where the management was extremely good, forestry work was undertaken by the hereditary land-owners. But the best forestry school on the Continent was at Prague, the capital of Czecho-Slovakia, maintained by the great landowners of Bohemia. There is still in the Highlands of Scotland, declared Viscount Novar, a wonderful field for the private owners of forest lands. Much of it might be worth very little per acre for sport or pastime, but there is a large area that could be turned into plantations which would yield very large results. During the course of the proceedings the visitors were hospitably entertained by Mr. Dyson Perrins, to whom and his head forester, Mr. Anderson, warm thanks were awarded for the delightful and instructive day spent at Ardross.

Silver Cup for Paeonies.—The competition for the second of three Cups presented by Mrs. Edward Harding for the best exhibit of three flowers of each of six varieties shown by an amateur, will take place on June 21, at the Royal Horticultural Society's fortnightly meeting, in the R.H.S. Hall, Vincent Square, Westminster.

Legacy to a Gardener.—Amongst recent wills we are pleased to see that the late Mr. Samuel Scott Stanley, Grove House, Roundhay, Leeds, left £400 to his gardener, Mr. John Thackray.

Changes at the Arnold Arboretum.—Professor Oakes Ames has been appointed Supervisor of the Arnold Arboretum, and Mr. E. H. Wilson, who has been associated with the Arboretum for twenty-one years and served as Assistant Director for seven years under the late Professor Charles S. Sargent, has been appointed Keeper of the Arboretum, the title of Director having been abolished. Professor Ames has been appointed Chairman of the Council of Botanical Collections of Harvard University, which consists of the Arnold Arboretum, Harvard Botanic Gardens, the Gray Herbarium, the Biological Laboratory and Botanic Gardens in Cuba, the Botanical Museum, the Farlow Herbarium of Cryptogamic Botany and the Harvard Forest of Petersham. Mr. E. H. Wilson is an Englishman, and received part of his horticultural training at Kew. He was a student at the Royal College of Science, South Kensington when he was invited to undertake a plant-collecting expedition in China for Messrs. James Veitch and Sons, Chelsea. Our readers are familiar with his successes in this and succeeding expeditions, accounts of which were published from the pen of Mr. Wilson himself in *The Gardeners' Chronicle*.

French Honour for Mr. C. H. Curtis.—The French Minister of Agriculture, when speaking at the banquet given by the Société Nationale d'Horticulture de France, on Wednesday, May 25, announced that the French Government had appointed Mr. Charles H. Curtis, Managing Editor of *The Gardeners' Chronicle*, Chevalier de l'Ordre du Mérite Agricole.

Brussels International Horticultural Exhibition.—The "Programme" of the Brussels Show has reached us, and is a booklet of considerable interest in which the actual schedule of classes is a comparatively small part. The exhibition is to be held in the Grands Halls et Jardins du Cinquantenaire, which occupies a fine position in Brussels, from September 10 to September 18. The King and Queen of the Belgians have extended their patronage to this function, which marks the seventieth anniversary of the foundation of the Société Royale d'Horticulture et d'Agriculture de Bruxelles. The President d'Honneur is M. Adolphe Max, Burgomaster of Brussels; M. Eugene Draps, of Uccle, is President of the Directors; M. Francois Roekens, General Secretary, and M. Désiré Draps, Brussels, the Assistant Secretary. Strong Patronage Committees have been formed representing various countries. The Committee for Great Britain includes sixty-three persons, all well-known in the horticultural world, with Lord Lambourne as President; Mr. Reginald Cory, Mr. H. R. Darlington, Dr. A. C. Hill, Mr. Stuart Low, Mr. H. T. Mason, the Hon. Sir John Ward, and Mr. R. W. Wallace as Vice-Presidents, and Mr. C. H. Curtis as General Secretary. No fewer than thirty-nine countries are thus represented, so that if patronage counts for anything, the show should be a great success. The Belgian National Dahlia Society will hold its show at the same time and place, and arrangements have been made for a conference of the Belgian Federation of Horticultural Societies. The principal groups of classes at Brussels will be for New Plants, Chrysanthemums, Dahlias, Floral Art, Arboriculture, Pomology, Viticulture, Market Gardening, Garden Plans, Horticultural and Botanical Books, Horticultural Implements and Machinery, and Garden Furniture. British horticulturists who propose to exhibit at the Brussels show should apply for information to M. Désiré Draps, 62, Rue Médori, Brussels.

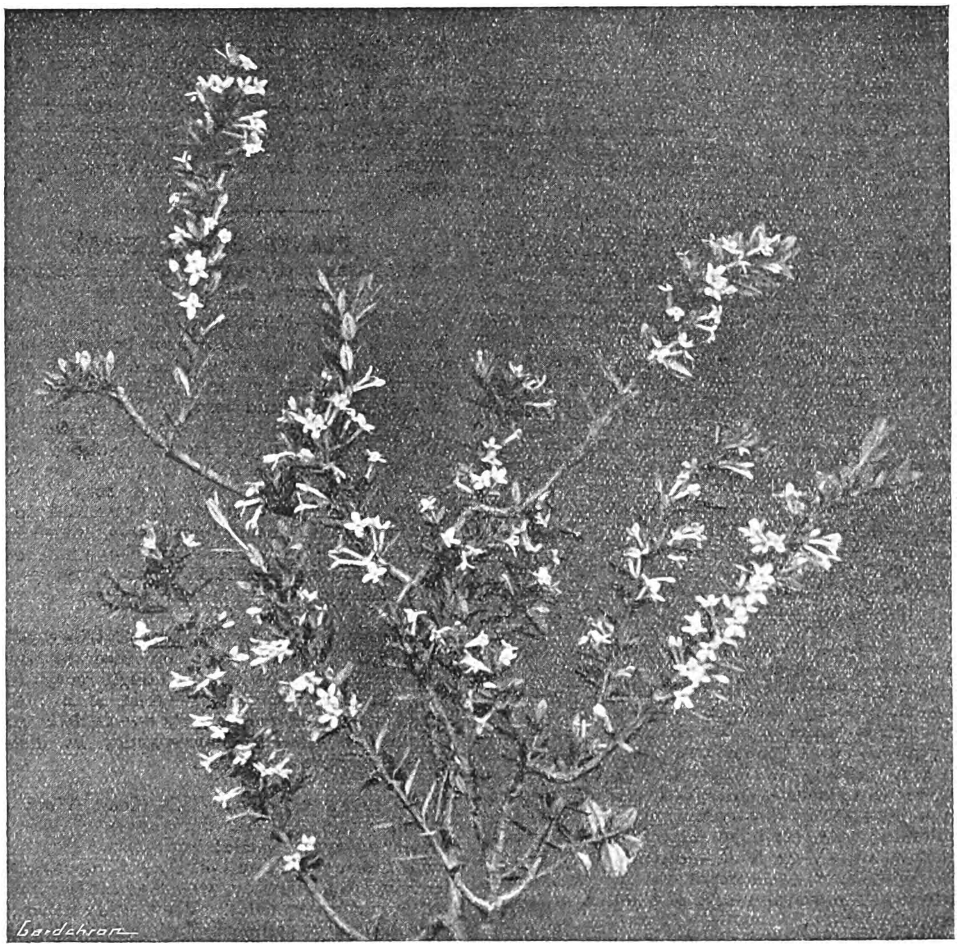


FIG. 186.—CHELSEA SHOW: DAPHNE AURANTIACA.
R.H.S. First Class Certificate, May 25. Flowers bright yellow. Shown by Mr. A. K. Bulley (see p. 376).

Appointments for the Ensuing Week.—Sunday, June 5: Wakefield and North of England Tulip Society's meeting. Tuesday, June 7: Royal Caledonian Horticultural Society's meeting. Wednesday, June 8: Royal Horticultural Society's Committees meet (two days); Sheffield Chrysanthemum Society's meeting. Friday, June 10: Leicestershire Agricultural Society's Horticultural show (two days); Manchester and North of England Orchid Society's annual meeting; Royal Horticultural Society of Ireland meeting. Saturday, June 11: Dundee Horticultural Society's outing.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Hardiness of Ceanothus.*—Believing that a few observations relative to the hardiness of Ceanothus papillosus, dentatus, and rigidus might prove interesting, I have sent you the following facts respecting them:—In May, last year, I was requested to plant out one of each sort against a wall having a west aspect; I prepared a compost of peat and loam in about equal parts, in which I planted them; they grew rapidly until late in the autumn, when I began to entertain some doubts as to their safety during winter without protection, but as they were planted for the purpose of testing their hardiness, they were left uncovered, and to my great satisfaction they have stood the winter without sustaining the least injury. C. papillosus has been covered with flowers since the middle of April; our plant is about five feet high and six feet in width; C. dentatus is now coming into bloom, and is equally full of pretty blue flowers, which are somewhat darker than those of papillosus, but not so large; C. rigidus does not show any sign of flowering at present, probably it will blossom in autumn. One of each of the above kinds was planted out in the open quarter in June, and they also made rapid growth, but they did not stand the winter so well as those planted against the wall. C. rigidus stood without the least injury, C. papillosus was injured at the points of the shoots, and C. dentatus was quite killed. As evergreens for a wall, where such plants are required, these fine Ceanothuses cannot be too extensively planted; their beautiful shining foliage and exquisite blue flowers render them objects of universal admiration. *G. Mason, Foreman, Northgate Nursery, Chichester. Gard. Chron., June 5,* 1852.

Publication Received.—*The Training an Employment of Educated Women in Horticulture and Agriculture*, by Mrs. Roland Wilkins The Women's Farm and Garden Association 29, Park Road, Upper Baker Street, N.W.1 Price 1s.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Oncidiums.—So soon as the new growths are forward enough, and about to develop new roots, Oncidium macranthum, O. serratum, O. undulatum, O. superbiens, O. monachicum and O. zebrinum, with other members of this large genus may receive attention at the roots; also any that are not flowering this year. On account of the length of time which the flower spikes take to develop, it is essential that the plants should be in robust health, and the rooting material in good condition. Weak spikes are not worth retaining, and should be removed, as if they are allowed to develop they may be the means of the early deterioration of the plants.

Compost.—A suitable compost for Oncidiums consists of equal parts of fibrous peat, A.1. fibre, Osmunda fibre and Sphagnum moss, with a moderate quantity of half-decayed leaves added. The compost should be used in as rough a condition as possible, as the fleshy roots of these Orchids will not grow freely through a mass of close material, and for this reason it is advisable to pot them only moderately firmly and grow them in comparatively small pots. Newly-potted plants will not require much water for some time, but as top growth and roots develop, the amount of moisture may be considerably increased. Keeping the compost moderately dry is one of the greatest aids to root-development, and it is advisable to keep the plants on the dry side until they are well rooted. These Orchids need an abundance of fresh air, which causes the pseudo-bulbs to be firm and solid, a very important detail in the cultivation of all Orchids. Frequent overhead sprayings are very beneficial during bright, hot weather, and a great aid in keeping the plants clean. A damp, moist situation in the Odontoglossum house the whole year round is suitable for Oncidiums.

Epidendrum vitellinum.—This cool-house Orchid may need attention; the potting of the summer-flowering variety is best left to a later season. Many failures to grow this plant successfully may usually be attributed to the use of too much fire-heat, or too dry conditions in the house; few Orchids will withstand a lower temperature, provided the compost is in a moderately dry condition. Shallow pans half filled with drainage materials are the best receptacles. Very little moisture is needed at the roots when the season of growth is completed, provided the surroundings of the plants are not excessively dry.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Potatos.—If the rows are not already earthed up, this work should not be deferred too long, or the haulm will get twisted or broken. A good and safe time for this operation is when the haulm is about eight inches high. Do not make the tops of the ridges too pointed.

Pumpkins and Gourds.—These plants may now be put out in their permanent positions and treated similarly to Vegetable Marrows. Later, when fruits have set and are growing freely, the plants should be fed liberally with liquid manure on very frequent occasions, especially where large Pumpkins or Gourds are required.

Onions.—Keep a watch for the Onion maggot, especially where it is known to cause trouble. Remove affected plants at once and burn them, then dress the remainder with soot and lime, and do so again on frequent occasions. This mixture will ward off further attacks. Keep the soil stirred with the Dutch hoe during dry weather.

Mushrooms.—At this season it is often difficult to grow Mushrooms without having them severely attacked by maggots, which, in some instances, spoil the whole crop. The fly which lays the eggs and causes the trouble should be destroyed by lightly fumigating the house or shed on several occasions so soon as it is first noticed. Keep the atmosphere of the Mushroom house moist by spraying the walls and floors; also spray a light mist over the beds. Ventilate, and keep the structure as cool as possible. Where beds have been in bearing for a considerable time and are found to be at all dry, an application of weak liquid manure, or a small quantity of salt added to water, will be found very beneficial.

Endive.—Where this salad is required early in the season, a small sowing may be made now, followed by fortnightly sowings. If sown too early, this plant is apt to bolt and run to seed. The mossy or curled varieties will be found invaluable for garnishing as well as being useful for salads. The seeds should be sown at this period in a somewhat cool position, on ground similar to that advised for Lettuces. Thin the young plants early, allowing a distance of about ten inches apart for the curled varieties and about fifteen inches for the round-leaved Batavian type.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Caladiums.—Caladiums that were started in small pots or boxes are ready for their final potting. The soil should be of a rich nature and open in texture to favour the production of brightly-coloured leaves. When the receptacles are well-filled with roots the latter should be well fed with liquid manure; sheep manure placed in a bag and allowed to soak for several days is a good stimulant and may be used freely. A heavy shade is essential to the plants when producing their leaves, but when the foliage is fully grown a lighter shade will suffice. The Caladium delights in a stove temperature and plenty of atmospheric moisture.

Begonia Gloire de Sceaux.—Cuttings of this beautiful Begonia may be inserted during the next few weeks. Although very rarely seen in gardens, this Begonia is a glorious plant when well-grown. Its one fault is that it cannot be flowered successfully in districts where fogs are prevalent.

Plumbago capensis.—This Lead Wort is a useful plant for the decoration of the conservatory during the later summer. Plants that were propagated late last season, or during the early part of this year, are ready for transferring to larger receptacles. They will succeed in any ordinary compost, but when they have filled their pots with roots they should be fed liberally with liquid manure and soot-water, and given a concentrated fertiliser occasionally. Continue to pinch out any flowers that may appear for the next few weeks to ensure good, bushy specimens. This Plumbago will thrive well in a cool greenhouse. Red spider is very partial to the plant, but by syringing it with clear rain-water the pest may be kept in check.

Violets.—These plants should be watered frequently during dry, hot weather. Occasional light sprayings with weak soot-water late in the evenings will also be very beneficial to them during the growing season. Red spider is one of the worst enemies of the Violet, and if this pest is not kept in check by frequent sprayings the best results will not be forthcoming. When the plants are well established an occasional watering with liquid manure will help considerably to build up strong crowns, which are essential for the production of good flowers in quantity. Keep all runners removed as they appear, and stir the soil with the Dutch hoe on frequent occasions, otherwise the surface will become somewhat hard owing to continued sprayings during dry weather.

Cinerarias.—Where it is desired to have these plants in flower early in the New Year, a sowing should be made now. The Cactus varieties have become very popular in recent years, also the stellata type, and where large plants are desired for decorating, these varieties are undoubtedly the best to grow. I prefer to sow the seeds in a six-inch pot rather than in a box, for I am inclined to believe they germinate much better in a pot. The receptacle should be clean, well-drained, and filled with a light, sandy compost. Cover the seeds lightly with soil, and stand the receptacles in a cool greenhouse or frame, keeping the soil shaded from bright sunshine. When the seedlings can be handled, they may be pricked off into small boxes; exercise great care in transplanting them, and do not crowd them, bearing in mind that they can be transferred to small pots with less damage to the young roots when plenty of space has been allowed, and, moreover, the young plants will be more robust in growth. Transfer them to larger pots immediately the plants become of a suitable size.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Melons in Frames.—When hot days are followed by cold nights, the frames should be protected at night by a covering of mats or some other material. Top dress the roots with good loam mixed with lime rubble and a little bone-meal as often as they appear on the surface. Pinch the laterals at the first joint until female flowers show in plenty and the plants are strong enough for cropping; pollenate the flowers daily. If early plants in pits or frames have not done well it is best to make a fresh start with robust seedlings. The linings of fermenting materials will require careful renovation, at the back and front of the frame, to obtain the necessary bottom-heat.

Cucumbers.—By the maintenance of a steady temperature both night and day, and regular attention to closing the lights early, with plenty of sun and moisture, a constant supply of Cucumbers will be forthcoming from pits and frames. The secret of getting sweet, crisp fruits in frames is quick growth. From this time forward, the difficulty of removing the lights for pinching and regulating the growths is easily overcome by doing it early in the day, and this work should always precede watering or syringing, before finally closing the frame for the day. Frame Cucumbers are apt to become crowded later in the season, therefore thin planting and stopping the shoots at the first joint beyond the fruits are necessary. As the plants become well-established, the supply of stimulants at the roots should be liberal.

Mid-season Grapes.—The development of the Grapes in mid-season vineries may be hastened by timely and liberal thinning of the bunches, by ventilating early in the day, and closing the house when the temperature is fairly high from sun-heat. Maintain an abundant supply of atmospheric moisture, and damp the bare spaces with diluted liquid manure. Inside borders that are well-drained can hardly be over-watered at this stage, but the water should be as warm as that used for syringing, and soft, if possible. Guano dissolved in water hastens the development of the foliage, soot water gives it colour, while liquid manure contains nearly all that healthy vines require. Late varieties, such as Lady Downes and Alicante, are rather later than usual, but the berries have set well. As late Grapes quickly reach the stoning stage, watch closely for scalding, a trouble to which Lady Downes and Muscats are subject. Keep the roots of the vines warm and growing actively, guard against low night temperatures, and a stagnant atmosphere; also see that the temperature does not rise too high with sun-heat before the house is ventilated in the morning. The stoning stage only lasts about a fortnight, and with warmth from the pipes night ventilation is possible with a fairly brisk temperature in which the berries will not be covered with condensed moisture. These measures, with liberal ventilation should prevent the temperature from becoming too high during the day, and too low at night.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet, Middlesex.

Morello Cherries.—Trees growing on north walls are looking exceedingly well and full of promise for a good crop of fruit, but of this the grower can never be sure until after the stoning period. The management of the Morello Cherry on walls, including the training of the shoots, is very similar to that adopted for the Peach. All outgrowing and over-luxuriant shoots should be stopped if they cannot be spared, and any that are not wanted rubbed off entirely; it is best to carry out this removal of shoots on several occasions during the early stages of growth, as the removal of many on one occasion would give a check to the tree. The young growths may be trained over some of the older branches to take their places at a future period, for it is necessary to cut out some of the older branches in the autumn and train in a number of young growths to keep the wall furnished with healthy, young, fruitful shoots. Insect pests, such as black fly, should be checked so soon as they make their appearance, by spraying with Quassia extract, or some other suitable insecticide. If the trees are not too crowded with growth the fruits will hang on the trees until late in the autumn.

Mulching.—Young, vigorous trees, and those that are bearing light crops but making robust growth, will not need mulching, but where the land is light, resting on sand or gravel, heavy mulchings, applied early in the season, are most beneficial to fruit trees. Trees worked on shallow-rooting stocks and growing on walls, also bushes, etc., should be mulched first, and especially those that are carrying heavy crops. Rich, well-rotted farmyard manure should be applied, and the application followed by a good soaking of water so that every portion of the soil in which the roots have penetrated is well moistened.

Removing Root-suckers.—All suckers arising from the roots of fruit trees should be removed, as they weaken the trees considerably. Plums are most troublesome in this respect, but Cherries and Peaches growing against walls sometimes develop suckers, which need to be dug up very carefully; cutting them off with a hoe is not of much use as buds that are left develop later.

THE FLOWER GARDEN.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Roses.—Green fly has proved rather troublesome on Roses this spring, especially on the rambler varieties, and prompt measures should be taken to combat the pest, which quickly ruins the plants. A nicotine spray is the most effective specific for green fly. A sharp outlook should also be kept for mildew on Roses and, if detected the plants sprayed with one ounce of liver of sulphur to three gallons of water, increasing the strength to half-an-ounce in one gallon of water when the foliage is matured.

Summer Bedding.—All the plants intended for the summer display should be put in their flowering quarters so soon as possible, starting with the hardier subjects first, and following with the more tender plants later. Some districts are more subject to late spring frosts than others, and this must be taken into account in setting all tender plants in the open. All plants should be well hardened and soaked at the roots before they are bedded out. Biennial plants raised from seeds, including Wallflowers, Myosotis, Silenes, Pansies, Violas, Daisies, Cheiranthus Allionii, Foxgloves, Verbascums, Hollyhocks, Geums and such like subjects, may all be sown from the beginning of June until the end of that month, the time varying according to the locality. It is a mistake to sow such subjects as Cheiranthus, Myosotis and Silenes too early, as in certain districts large plants winter badly; in fact, in the immediate neighbourhood of London it is impossible to winter Myosotis and Silenes unless the plants are quite small. Wallflowers and Cheiranthus Allionii also prove very troublesome if at all overgrown, and, I understand, the same difficulty is experienced in the neighbourhood of most large manufacturing towns. Generally, the seeds may be sown thinly in lines in the nursery garden, although it is wise to sow choice varieties in boxes in cold frames. It may be necessary to shade the seed-beds during very dry weather, until germination takes place, and this is usually best done with branches of shrubs and trees. The new race of winter-flowering Pansies is well worth growing, and if seeds are sown now the plants will flower before planting out time, making it easy to pull out any rogues or discard poor forms.

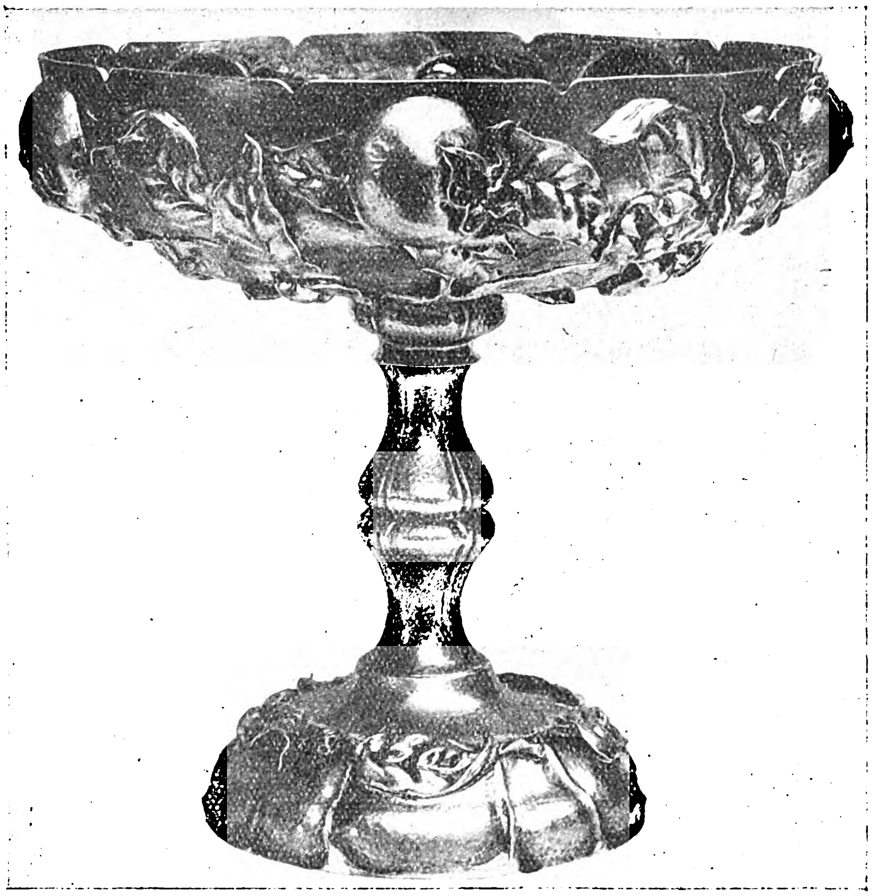


FIG. 187.—SILVER WORK OF ART PRESENTED TO THE SOCIÉTÉ NATIONALE D'HORTICULTURE DE FRANCE BY THE ROYAL HORTICULTURAL SOCIETY AND AWARDED TO THE AALSMEER GROWERS. (see p. 403).

Bedding Schemes.—The plans for next year's spring bedding should be decided now, while the successes and failures of the past season are fresh in mind, and to allow plenty of time in which to raise the necessary stock. Where large quantities of spring-flowering bulbs are used, the order for the bulbs should be placed as early as possible.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Nerines, Lachenalias and Freesias.—These natives of South Africa are approaching their resting period, and so soon as the foliage turns yellow, water should be gradually withheld at the roots until they are quite dry. To complete the thorough ripening of the bulbs or corms they should then be placed on a sunny shelf in full exposure to sunshine, where drip or damp will not reach them. When perfectly ripened the Freesias should be shaken clear of the soil and the bulbs sorted into various sizes, to be again repotted early in August, but in the case of the Nerines and Lachenalias, splendid results are obtained by keeping them in a pot-bound condition, and only breaking them up when it is desired to increase the stock.

Chrysanthemums.—Plants of the late-flowering section of Chrysanthemums which are now well-established in six-inch pots should be placed in the pots they are to occupy finally. For this potting a generous compost should be prepared, and slow-acting manure, such as bone-meal, added in the proportion of a six-inch potful to one barrow-load of the compost. Where the stopping or pinching of the young growths was attended to early in May, the side-shoots that developed subsequently will now be growing freely, and thus little or no check will be given to the plants, which should be potted firmly, using a rammer to compress the soil around the ball of roots. A space of about two inches should be left in the top of the pot for future top-dressings as the season advances, and the plants set out in their summer quarters, which should be clear from over-hanging trees, or other shade, so that all the sunshine may reach them.

Kitchen Garden.—The earliest-raised plants of Brussels Sprouts and other Brassicas are ready for planting in their permanent quarters, which should be done at the first opportunity. Where these plants were set out two or three inches apart in nursery rows, they should be lifted carefully and replanted with a trowel, so that they may receive the least possible check; Cauliflowers especially are peculiarly sensitive to a check to growth, and the cause of "buttoning" may frequently be traced to careless handling at planting time. Where large quantities of Brussels Sprouts are grown, it is a good plan to plant Cauliflowers or Early Cabbages in alternate rows, so that when these have been cleared, the Sprouts will have plenty of space.

ALPINE GARDEN.

ONOSMA ALBO-ROSEUM.

This delightful little plant never looks better than when well clustered on the rock garden, where the beauty of the drooping, pearl-like flowers may be fully enjoyed. I find that this plant needs a very dry situation, and it enjoys an abundance of grit and stone around its collar. The soil should be well-drained and consist of very sandy loam. A position in full sunlight should be selected for this plant. The hoary foliage is charming, even in winter, and provides a delightfully pretty setting for the pendent flowers; these are, when first open, ivory-white, but they quickly acquire a slight suffusion of pink. The plant is, however, rather variable in colour, the suffusion occasionally being of a red or purplish hue.

Excessive damp may prove inimical to this species; therefore, it should be planted in a well-drained, gritty soil, and a high situation. Propagation is easily effected by cuttings.

O. albo-roseum is a good companion to the better-known O. tauricum, and both species are possessed of more than ordinary beauty. O. albo-roseum flowers in the early summer. *Ralph E. Arnold.*

VERONICA GENTIANOIDES.

This beautiful member of the Speedwell family, which was introduced from the Caucasus in 1748, deserves a position in every garden, serving as an excellent subject for both the rockery and herbaceous border, not only for its free-growing qualities, but, perhaps, more so because of the profusion of blossom produced at this period of the year.

When in bloom, V. gentianoides appears at a distance like a soft mass of grey-blue, producing a wonderful restfulness to the eye.

The racemes of grey-blue flowers are borne on elongated stems, attaining a height from six inches to twelve inches, or more. The leaves are of a light green colour and radiate outwards, covering the ground. V. gentianoides succeeds in almost any good, rich soil, provided suitable drainage is assured and a sunny position afforded the plant.

Propagation is easily effected by division of the roots in spring or autumn.

There is a white and variegated form, but neither excels V. gentianoides for general effect. *T. D. Boyd.*

IRIS GARDEN.

PLANTING FLAG IRISES.

The members of the various sections of the so-called Flag Iris may be successfully planted or transplanted over a long period, varying from autumn to spring. There is, however, little doubt that the best time to transplant is immediately after they have finished flowering, as that period coincides with the production of new roots; the plants thus become well-established before the winter, and there is every prospect of them producing a full crop of flowers the following season.

Irises are good plants for town gardens, the stronger-growing varieties, at least, succeeding under very adverse conditions, both as regards soil and situation. Like all plants, they repay for good cultivation, and generally do best in a good, fertile, well-drained loam. Where large collections are grown, it is essential to transplant them in fresh ground from time to time, or renew the soil in the beds or borders, as fresh soil is the best preventive of disease.

The beds should be prepared thoroughly and enriched with well-decayed manure and bone-meal, the latter at the rate of six ounces to eight ounces to the square yard. A similar dressing of basic slag should be given, autumn being regarded as the best time to apply this fertiliser, but there is no reason why it should not be applied when the beds are being prepared for planting. In replanting, care should be taken not to set the roots too deeply; the rhizomes should be covered with no more soil than what is necessary to keep them in position. If these Irises are planted carefully and well watered afterwards in dry weather they will soon become established in their new quarters. *J. C.*

PALESTINE AND FLORENTINE RANUNCULUS.

I read with pleasure, in *The Gardeners' Chronicle* (page 345), that an Award of Merit has been granted by the Royal Horticultural Society to a new strain of improved Palestine Ranunculus, shown by Messrs. Watkins and Simpson. It may be thought that this strain, raised by myself, has some affinity with my old one, known under the name of Giant Florentine, that obtained an Award of Merit at the Wisley trials two years ago.

The new strain, shown now for the first time, has been raised by myself, by careful selection, continued for fifteen years, from a single scarlet variety from Palestine; its double or semi-double flowers are not so large as those of the older giant strain (known also as Roselline di Firenze), but the colours are brighter and include some shades of red and scarlet, colours unknown in the Florentine race. This is a good example of improvement by means of culture and selection.

By the kindness of Professor Pampanini, I received from the Botanical Garden of Florence, some roots of a dwarf Ranunculus asiaticus, with yellow flowers and peculiar foliage, he had collected growing wild. As for many years I was anxious to investigate the origin of the varieties of the so-called Ranunculus africanus, Hort., I thought that this was a good occasion for making experiments. I submitted these roots to the same treatment I had employed for those from Palestine, but after seven years of effort, not any improvement had appeared. Therefore I gave up the experiment. There is a striking contrast between the behaviour of the other from Palestine, that, in the third year of sowing, had increased the number of petals, and in the fifth has shown new shades of colours. But Nature has her secrets! *Dr. Ragionieri, Castello, Florence.*

THE GLADIOLUS.

(Continued from page 356).

I do not think it invidious to state here that the late James Kelway, by his constant zeal and untiring efforts in their culture and hybridisation, became known as one of the greatest authorities on Gladioli, or that the rapid improvement which he brought about in colour, markings, size of flower and length and compactness of spikes was really wonderful, or that he laid deep and wide the foundations of the present popularity of the flower. Would that he could have lived to see it. He was a most untiring and indefatigable worker; early and late, his time was devoted to his great speciality, under considerable difficulties as to soil.

I have his diary, filled, perhaps unfortunately, not with notes of interesting people whom he must have met, or of social or political or scientific events of his time, but of what he himself did, or caused to be done, day by day, month after month, year after year, for nearly fifty years, in respect of the cultivation and exhibition of Gladioli. Those were the days when labourers reared families on 9s. to 11s. per week! Horsed coaches took James Kelway, John Keynes and other veteran champions many a weary mile through the cold nights from country nurseries to the Crystal Palace and South Kensington, with their Dahlias, their Hollyhocks, or their Gladioli packed in the "boot." Great were the jubilations here year after year at the list of successes won, and equally great the consternation on one or two occasions when the Scotsmen came down from the north late in the season and "wiped James Kelway's eye." Then in 1878 and again in 1889, the Langport Gladioli were taken to Paris and beat the Frenchmen on their own ground. Altogether many hundreds of first prizes were collected from all parts, and afterwards many scores of cups and gold and silver medals for non-competitive exhibits.

Regularly each season many certificates were awarded to the Kelway novelties. The glorious varieties were, it seems to me, speaking from recollections of things of my early youth, as fine as those of to-day, at least in length of spike and delicate beauty, although certainly not in the markings and wide range of colour, nor in variation of colour in the same flower, nor in the breadth of flower. Spikes then carried twenty-four pips, eighteen or twenty open at once. But all those varieties are gone, like "the snows of yester year," as those we know to-day will also disappear. The "life" of some kinds is longer than others. I recollect that the famous "Duchess" (of Edinburgh) remained for about thirty years, but few hybrid varieties seem to last more than for ten to fifteen years. Of the fine sorts sent out by John Burrell none had a lengthy existence.

According to present day tastes, which are more florid, the old method of exhibiting left much to be desired. Tube-shaped, metal cups were inserted in three rows of holes made in the wooden box in which the spikes travelled by train, with brass rods inserted at the corners and ends and joined by horizontal rods against which the spikes, with their own foliage, were tied, each spike trussed to a green stick. A big exhibit looked like rows of red-clad soldiers in line; for red and bright rose were the predominant colours. Arranged like this, with water in the cups, the flowers travelled and arrived fresh so far as Dublin and Dundee, and even Paris. The boxes and cups were painted green and there was nothing to distract attention from the flowers. Nowadays one admires the beautiful gilded baskets or other ornamental holders, with ribbons and a variety of alien foliage, almost as much as the flowers. Very beautiful is the effect of such elaborate exhibits for instance, as Mr. Unwin's of Histon, last year. The Gladiolus is certainly a rather difficult flower to exhibit. The mean between stiffness and floppiness, starkness and over elaboration of ornament is not easy to attain with it. I remember that we used to travel with the great boxes to see that they were not tipped up, sitting on them on the deck of the boat for Paris, the boxes having painted on them, "*Tenir ce cote en haut*," which was *our* French for "This side up." During the non-palmy days of the R.H.S. ours was sometimes almost the only exhibit at South Kensington. Now one is liable to get crowded out.

The trade in Gladioli grew, until from eight acres in 1877 we planted at Langport about forty acres every year, and a large, massive warehouse was built in which to store the corms. Some of the flat, alluvial, low country near Langport gets flooded each winter; James Kelway thought it would make good bulb land and had some acres ploughed and planted. Alas! floods that year came in the summer, and two or three acres of valuable stock could not be lifted, and was totally lost. My grandfather used to go to great trouble and expense in the cultivation of our heavy soil, placing pure yellow sand of local origin under each corm. The damming of the brook and washing of the corms at lifting time was a necessary, ardous, and rather picturesque operation. The men always called them "Gladylis," or more familiarly and simply, "roots."

James Kelway paid a visit to Souchet, at Fontainebleau, just before the Franco-German War of 1870-71, and was very "bucked," as we might say now, to find Souchet's house called "La Villa Glaieul," his own dwelling having carven on the entrance pillars the words, "Gladioli Villa," as it has to this day. During a second visit after the war, he was informed that the stock of corms had been boiled to make soup! *James Kelway.*

(To be continued.)

A REVISION OF VIOLAS.

(*Continued from p.* 357.)

V. CANINA.—Under V. canina, Farrer has grouped a number of forms of Dog Violets which are distinct. The name V. stricta has been made to do duty for both V. elatior and V. persicifolia—both grown in English nurseries, the former of which received an Award of Merit last year. V. Ruppii is a synonym for V. montana, a sub-species of V. canina, while V. Hornemannii is simply V. elatior. V. lancifolia or lusitanica is a synonym of V. lactea, the representative of V. canina on the Atlantic shores of Europe. V. Jordanii is a distinct species, common in the French Riviera. V. stagnina should be known as V. persicifolia, Roth., under which name it is grown at Kew. It is a rather slender counterpart to V. elatior. V. Schultzii is an unimportant variant of V. montana, which is not peculiar to Alsace but is found here and there, as in the Euganean Hills near Venice, and as far distant as north-east Siberia. V. pumila is a distinct species which may be traced in catalogues under the synonym of V. pratensis. All these Dog Violets are nearly akin to the type, V. canina, except V. elatior and V. persicifolia, which, in their erect, tall habit (almost like stalks of Mint), are very distinct.

V. cenisia.—Both Becker and Burnat, than whom there are no more trustworthy authorities, give this as a purely limestone species. They give no instance of it occurring off the limestone. It appears to grow well enough in pots in frames, seemingly indifferent as to soil, but the difficulty is to get it to blossom and to carry it over the winter. Taking a cue from Nature, it cannot be a pot plant; its roots ramify in all directions, the plant erupting into leaves over a wide space, wherefore a very roomy sand trough seems to be indicated, wherein the roots may have liberty to ramble as they will. I have seen Campanula alpestris (Allioni) growing like a weed in just such a receptacle, poking out its flowering shoots in an unexpected direction. Farrer describes V. cenisia uniformly as purple; but its authentic description is caerulean or sky-blue, which is the only form in which I have found it on the Mont Cenis. Farrer's account also suggests that V. cenisia is at least slightly downy; on the contrary, its typical form is entirely glabrous, as in Switzerland; while as its area goes southwards it becomes more pubescent, until on the frontiers of the Cottian and Maritime Alps it is entirely minutely pubescent. Mr. Gavin Jones has collected near the Argentera Pass a form which is hardly distinguishable from, and may be, V. diversifolia, a species which is densely pubescent, and is normally confined to the Pyrenees. The Pyrenean species belongs to the Valderia group, being separated from the Cenisia Violas by its taller and more tufted habit as well as by the greater division of the stipules. Its typical Pyrenean form is V. diversifolia, W. Bckr., which Farrer correctly describes under the names V. Lapeyrousei (*sic.*, Lapeyrousiana) or vestita. They are "probably one," he states, which is the case; the former being the name given by Rouy and Foucould, and the latter that given by Grenier and Godron. Farrer also states that V. Comollia and V. valderia, though reckoned as mere varieties of V. cenisia, will always be treated by the gardener as separate species; in this he anticipated the botanists, who not only now regard them as separate species, but even separate V. Comollia as belonging to the Cenisia group from V. valderia as belonging to a group of its own.

Natural hybrids of the Cenisias are very infrequent, but a very notable one is V. cenisia × V. calcarata. To this has been given the name of V. Jaccardii, after Professor Jaccard, who first discovered it at the base of the Lämmern Glacier in the district between the Gemmi Pass and the Winter Sports resort of Adelboden. Dr. Schinz, of the Zurich Botanical Gardens, tells me that there is little hope of its being re-discovered; but at the same time Dr. Jenkin, of Hindhead, has it in his garden, having been collected by him inadvertently on Mont Cenis. I am informed by Dr. Jenkin that the hybrid both grows and flowers with more vigour than either of the parents—in which case it is a discovery of the highest merit. *E. Enever Todd, Lt-Col.*

TREES AND SHRUBS.

SALIX VITELLINA PENDULA.

For the last two years I have been trying to find out what Willows have been named S. babylonica ramulis aureis, but those I have seen under that name were S. vitellina pendula from Westonbirt and Wisley. At Kew Gardens it is under its correct name. I have seen it elsewhere without name. The first record of this weeping Willow was in Späth's Catalogue, No. 69, p. 110 (1888), and it is said to be often sold under the name of S. babylonica aurea. Presumably it is also sold as S. babylonica ramulis aureis. It is a very singular Willow in being either androgynous or gynandrous, for the catkins may be nearly all male, or nearly all female; or the catkins may be of one of these sexes chiefly with a scattered few of the other sex in the same catkin. It is evidently of hybrid origin, and not a variety of the true S. vitellina, which is also regarded as a hybrid by many botanists. If I were to suggest the parentage it would be S. babylonica × S. vitellina. I come to this conclusion from the fact that the leaves are narrower, the branches more slender, the catkins much shorter and more slender, and the bracts of the catkins much shorter than in S. vitellina. This comparison has been made between the young trees of S. vitellina pendula in the R.H.S. Gardens at Wisley and trees of S. vitellina in various parts of Surrey and Middlesex, which include one male and many female trees. An examination of the catkins shows that S. vitellina pendula is monoecious in all or nearly all cases, instead of being dioecious as in Willows generally. In one case I found a hermaphrodite flower, one ovary and one stamen being side by side in the same bract. The tree is at all times highly ornamental, and in 1926 was in full bloom in February. *J. F.*

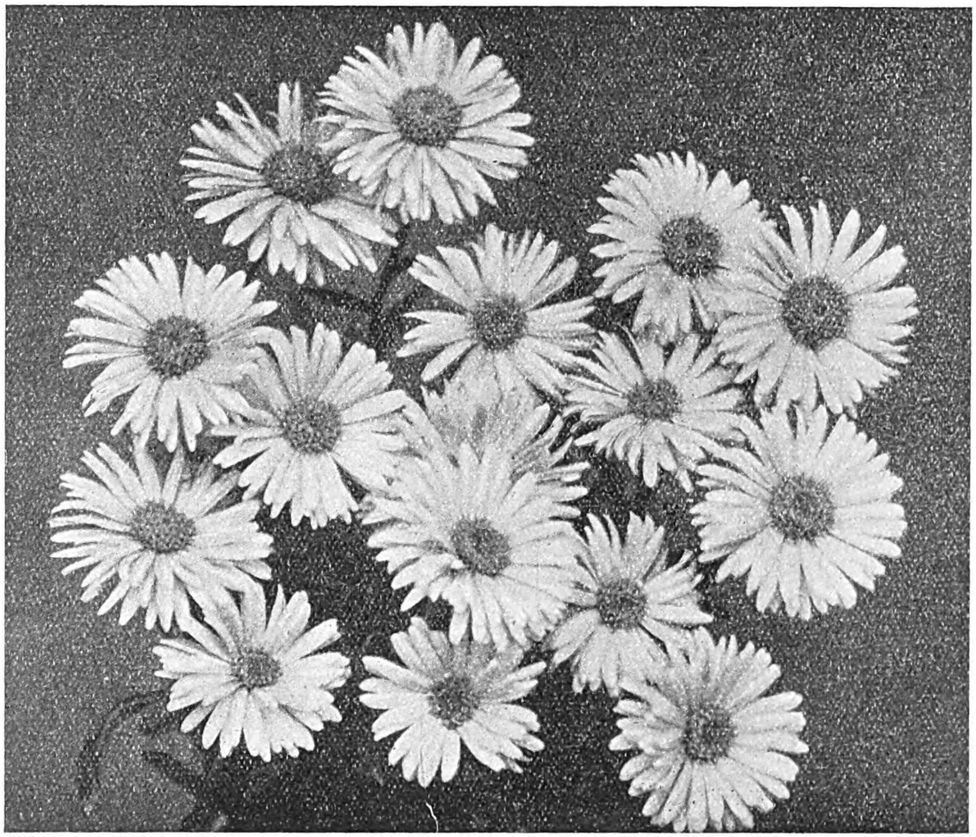


FIG. 188.—CHELSEA SHOW: ASTER ALPINUS VAR. SHIRLEY.
R.H.S. Award of Merit, May 25. Flowers bright mauve. Shown by Messrs. B. Ladhams, Ltd.
(see p. 377)

CERCIS SILIQUASTRUM.

Though the Judas Tree has been known to English gardens for three hundred years, it is by no means so often seen as it might be, and this is the more remarkable when one realises that it is quite hardy and grows well in light loam and a sunny situation.

C. Siliquastrum is a deciduous species, with smooth, glaucous green, heart-shaped leaves. The flowers are produced in clusters at the joints of the older wood; they are a bright rosy purple and are usually borne with the greatest profusion on every branch and even upon the trunk. As a rule, seeds are yielded in plenty, the long, brown pods remaining on the branches until the following year, and when one considers how easily this tree can be propagated from seeds, one is again surprised that it is not more popular.

The Judas Tree is a very conspicuous object in the gardens and streets of Italy and southern France throughout the month of April, but here it is generally considered a May-bloomer. When I was in the Esterel Mountains a few weeks ago, I saw nothing more beautiful than the quantities of Judas Trees, which are naturalised in some of the valleys of that romantic part of France. All were in full and abundant bloom. They grow along the stream-sides in places as thickly as Alder bushes, filling the glens with a lovely rosy flush. In spite of the poor, rocky soil in which they grow, many of these trees had been well over twenty feet in height, but all the older specimens had been destroyed by forest fires, the present crop being seedling saplings and basal shoots. *A. T. Johnson.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden W.C. 2.

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER, *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Local News. -*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc.. but they cannot be responsible for loss or injury.*

MR. F. KINGDON WARD'S NINTH EXPEDITION IN ASIA*

XI.—The Alpine Camps.

AND now for the June Primulas. On the first day at the lower alpine camp (June 2), I followed a flock of sheep across the great snow-drift beneath which the roaring Seinghku was rapidly driving a large tunnel. A vast cone of snow filled the rocky glen above, affording easy access to the cliffs, and up this slope the sheep plodded to nibble at the scarcely visible pasture above. On one flank of the snow cone was a high, bare-looking earth bank, and my attention was at once drawn to it by a glimpse of a large bright pink flower, almost flush with the ground. I thought at first that it must be a new kind of Rose, but when I reached it I found it was not a flower, but a head of flowers, belonging to a glorious Nivalis Primula, which I promptly christened the Tea Rose Primula. Imagine my astonishment on learning later that this glorious plant was none other than Primula muliensis, a species found years ago by Handel-Mazzetti, in a much drier country 200 miles east of the Seinghku as the wind blows! However, at the time, I did not know this, and I revelled in the joy of discovery; never had I seen so wonderful a Primula, opulent, glowing, and of a much pinker pink than P. rosea.

P. muliensis reminded me straightway of the delicious P. falcifolia, the Daffodil Primula of Tibet, and was as pure pink as that was pure yellow, whereas the vast majority of Nivalids are purple or violet, and P. chionantha is white. But P. falcifolia has only one, or sometimes two flowers, and P. muliensis bears six or eight, in a tight, spherical truss; also P. falcifolia is fragrant and P. muliensis is not.

Here, then, was P. muliensis fairly abundant on both sides of the river, but quite local. It flowers at the beginning of June before the strap-shaped leaves attain any length, growing in the open on earth banks and grass slopes at the foot of gneiss cliffs, sinking its long roots and Onion-shaped crown deeply into the loose, stony soil; but although keeping to the open, it hugs the shadows. Throughout the summer it lengthens out, but meanwhile the surrounding vegetation has grown up, and by the autumn it is smothered, and difficult to find in seed. The strap-shaped leaves are rather fleshy, dark polished green above, silver beneath. The capsule is of the rather spherical, crumbling type, as seen in P. falcifolia, not the narrow, cylindrical box, crowned by teeth, met with in P. Coryana, for example; but the seeds are of the typical tuberculate mahogany brown Nivalis type.

So far as I know, P. muliensis is not in cultivation, and as Professor Wright Smith considers it one of the three most lovely Primulas in the world, it is to be hoped that it can be raised to flower in this country. Seeds of it have at any rate, germinated.

The next Primula to catch the eye was P. eucyclia. The type specimen found by Mr. Forrest's collectors is described as "pale shell pink," probably from a dried specimen, and is said to come from 14,000 to 15,000 feet altitude, which is, I fancy, about 4,000 feet too high for it, if only for the reason that at the season when it flowers, namely, May, the mountains at that altitude are under five feet of snow. I found beds of P. eucyclia laid over a foundation of spongy moss, growing in deep shade under trees where water splashed and dripped down the cliff from the snow beds above; rarely does it venture to approach the open, and when it does it hardly flowers at all. On the other hand, though it flowers profusely under the rocks and Rhododendrons it loves so well, it ripens hardly any fruit there, which is really not surprising.

In my experience the flowers are either mauve or violet, with yellow or red "eye," and the plant does not occur above 11,000 feet, being most abundant at about 10,000 feet. Though I met with it on both sides of the river, it was quite local in the Seinghku valley, and was usually associated with Magnolia globosa. P. eucyclia is a charming plant, and it might be possible to grow it in beds of moss in the rock garden; it is more compact, and has larger and better-coloured flowers than its near Himalayan relative, P. vaginata.

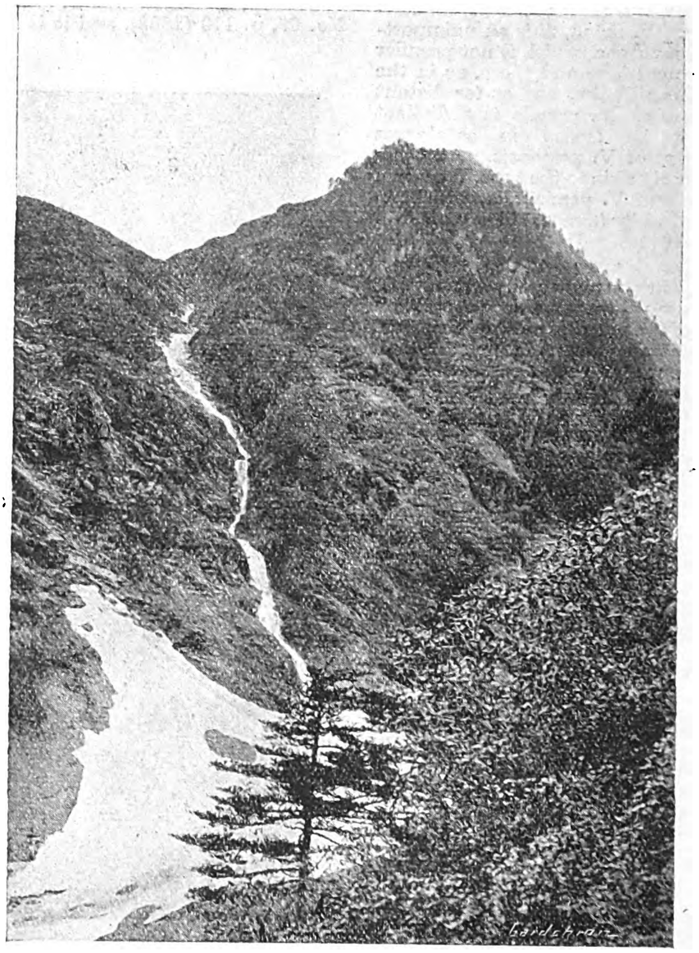


FIG. 189.—"WATERFALL CLIFF" COVERED WITH DWARF RHODODENDRONS, ILEX, ETC. PRIMULAS GROW IN THE VALLEY AT THE BASE OF THE CLIFF.

The mauve, or violet flowers are very deceptive, as most of the Geranioides section, to which this dwarf is referred, such as P. latisecta and P. septemloba, run decidedly more to red than to blue; and if Mr. Forrest did guess at the colour of his plant from a dried specimen, he had every justification for saying pink rather than mauve.

Another common, early species was P. euosma, one of the Petiolaris section, which includes the now well-known P. Winteri. P. euosma, which is widely distributed in the Burmese Alps from Hpimaw to the Seinghku, is a feeble, pallid edition of P. Winteri, and a still feebler and more pallid edition of P. sonchifolia; but to see the bare earthen slopes, from which patches of snow have just melted, dabbled over with the blue flowers and green rosettes of P. euosma is a joy. It is not likely to supplant P. Winteri in cultivation, but it might supplement it, since we have nothing to hope for from P. sonchifolia.

On June 12, we started for the new hut, the kit being carried by yaks and coolies. The monsoon had, by this time, set in properly, and a persistent drizzle assailed us.

A short distance above our camp we began to climb steeply, usually marching over the great snow drifts; the conditions were truly alpine, there being only patches of Fir forest on the slopes, none in the valley itself. Open meadow or turf alternated with dense scrub, consisting chiefly of Rhododendron, with several species of Acer, Viburnum Wardii, Enkianthus, Salix, Pyrus, Lonicera, Rosa sericea, Cotoneaster, etc. The wealth of Lonicera seen in the forests of Tibet was lacking here, and I noticed only two species with rather inconspicuous flowers; instead, there were six or eight species of Acer, one in particular being a handsome tree, very striking in fruit. A Pyrus with large, polished leaves, the leaflets rounded at the apex, was also worth noting. (K.W. 6,851).

---

* The previous articles on Mr. Kingdon Ward's Ninth Expedition in Asia were published in our issues of August 14, 28, October 9 and November 20, 1926, and January 1, February 19, March 5, 19, and April 9, 30, 1927.

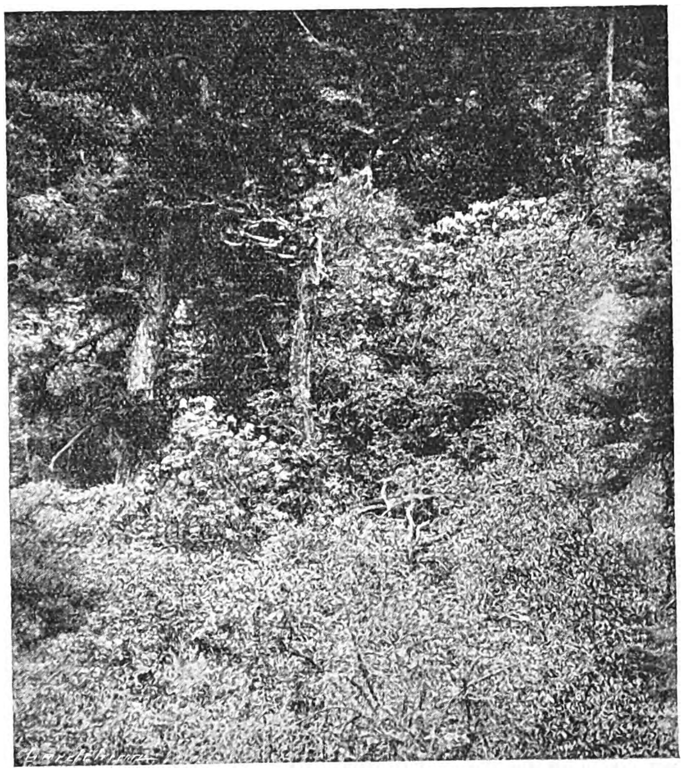


FIG. 190.—RHODODENDRON THOMSONII IN FLOWER, WITH ABIES FOREST IN THE BACKGROUND.

The rain now came down harder than ever, and the snow drifts, concentrated in the narrow valley, made it very cold, which was no doubt the reason why there were so few flowers here, though the higher slopes glowed with Rhododendrons. There was promise of much later on however. Two more species of Primula call for remark. One was clearly a small 'Candelabra' of the P. serratifolia type, usually producing no more than one whorl of bicoloured flowers, the colours arranged concentrically, as in the common Primrose, instead of in stripes, with a dark bullseye and a pale "outer." By the middle of July this was in full bloom everywhere, and I have never seen a Primula, 'Candelabra' or otherwise, growing in such countless thousands. Acres of open hillside were yellow with it, sheeting the meadows, covering the rocks, lining the streams, everywhere. It seemed to take up most of the valley, between 10,000 and 12,000 feet. Professor Wright Smith informs me that it is probably a new variety of P. serratifolia, but personally, I think it has every claim to specific rank. In appearance, the two plants are quite different. They never grow together, and P. serratifolia is only found 2,000 feet higher up, where this variety is scarce. The second species had big leaves and small, gamboge flowers, which looked as though they would expand later, but never did. I put it down on sight as a 'Sikkimensis'—until I saw it in fruit; then I decided that it, too, must be a 'Candelabra.' These two sections have much in common—in foliage, in habit, their flowers usually whorled, and in their choice of situation; they are easily distinguished by their capsules, their seeds, and less certainly by their corollas. Here, however, was a baffling species with the Sikkimensis flower, the 'Candelabra' capsule, and foliage which might have belonged to either! It grows in wet ground by streams, if not actually in bogs, but is not a plant with a future, so to speak; and its name is P. prenantha. Another fine plant just in flower was so like Meconopsis Baileyi that at first I thought it must be that species (see *Gard. Chron.*, April 30, Fig. 148). Anyone who pictures M. Baileyi will have an almost exact picture of K.W. 6,862, which only differs from the prototype in a few technical details, and these do not affect its make-up. This Meconopsis is a plant of the open meadows, not of the woodland glades. In July the meadows were azure with its great, floppy heads; it grew in thousands and flourished exceedingly. Like M. Baileyi, it is, I believe, polycarpic.

Another and evidently very large species of Meconopsis was sprouting, but did not flower till July. It had a crown of pinnatisect leaves covered with long, silky, golden hairs, recalling M. Wallichii, though in other respects it was a very different plant, more like M. discigera in habit, and M. robusta in capsule.

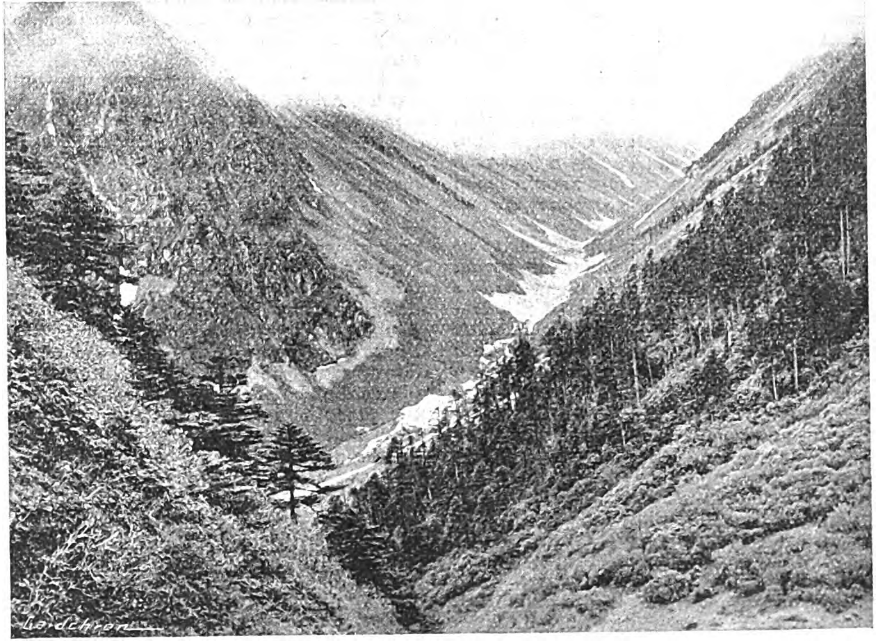


FIG. 191.—VIEW OF THE UPPER SEINGHKU VALLEY ON THE BURMA-TIBET FRONTIER AT THE END OF JUNE. 11,000 FEET ELEVATION. ABIES AND RHODODENDRONS ON THE SLOPES.

After climbing the last snow slope, we reached my new hut, at the junction of two snow-bound valleys. There were some herds' huts also, one of which my servants occupied. The altitude was exactly 11,000 feet, and it was clearly an excellent location, for steep and high as the mountains were, they could be climbed. I could go up either valley at will; and though there was a great quantity of snow, it was melting, and it was better to be too early for the flowers than too late. So I settled down in the hut for three weeks' exploration.

The valley was a little wider where the streams joined, floored with meadow and bushes; but the ground was boggy. I was rather surprised to find a good mauve form of Primula Wardii here, the first record of its occurrence in Burma, far west of its chief centre. Lining the bank of the stream, too, was a form of P. sikkimensis, with very fragrant milk-white flowers; but this, which recalled P. microdonta variety alpicola, of Tibet, was scarcely in flower.

The rest of the day was spent in putting my house in order, as I wanted to start exploration on the following day. The first necessity was a fire, not only on account of the cold—and at night the temperature in the middle of June sank to 40°—but still more on account of the prevailing dampness. Clothes, drying paper, everything when not in use had to be kept either shut up in a steel box, or on a rack over the fire, and extensive arrangements were made for drying paper, of which I had brought a large supply. This was a great improvement on a tent; and though the wind whistled through the wide cracks, which gaped between the logs, I suspended some waterproof covers and kept it at bay.

Next day I started up the snow-bound valley towards the Diphuk La. Success was immediate. A minute mauve or purple-flowered Primula of the 'Auriculata' section, scattered over the sodden, sloping lawns, recalled P. Genestierana, Handel Mazzetti (=P. Doshongensis of Tibet), and is therefore scarcely a garden plant, but it had more flowers in the spherical head than that species. Much more promising was a dwarf Iris, its purple-stained flowers almost flush with the ground, peeping through the snow. These flowers were certainly fragrant, and so I recorded them; but subsequent attempts to elicit some perfume always failed. I do not know why, unless the plants were too old, or too dry, or too wet, or it was the wrong time, or something else. The stem never elongated. There was no stem, but the tube was long; the falls had neither crest nor beard, and the capsule opens only at the centre of the sutures. In late October, I found a few growing out of the ground.

On the great granite cliff which flanked the valley on the other side of the stream, I found a second, slightly larger, 'Auriculata' Primula, quite a dainty thing, with mops of mauve flowers; and saw, out of reach, shivering bunches of the glorious but obstinate Isopyrum grandiflorum. It seemed, however, fairly evident that the chief treasure-trove of the Seinghku lay amongst the Rhododendrons, actual and prospective. *F. Kingdon Ward.*

NOTES FROM A WELSH GARDEN.

IN spite of the cold spell that prevailed from just after Easter to the end of April, spring-flowering shrubs in general have fared very well. Exochorda grandiflora has seldom been better, and the more uncommon E. Giraldii, in an exposed position by the waterside, is carrying a fine head of its very large white blooms. The habit of this shrub appears to be considerably stiffer than that of the foregoing; it is a vigorous grower, and its racemes of seven or eight flowers are held upright at the tips of the branches. In a sheltered place in the woodland, Camellia Donckelaari was, early in May, a striking object, its semi-double, gold-centred, crimson-scarlet blooms being very effective against the glossy, deep green foliage.

Few shrubs arouse more admiration at this season than Pieris formosa. Though the plant lost many of its blossom buds during the winter, the burnished vermilion of the bold new shoots and leaves makes such a wonderful display of unusual colour as to compensate for the absence of bloom. Erica australis is another member of the Ericaceae which is always effective, and this year the flowering sprays are exceedingly good. I have rarely had this excellent Heath injured by frost, notwithstanding the fact that it makes much of its new growth in winter and early spring. E. mediterranea var. Brightness is a distinctly beautiful form. Its blossoms are produced in long and ample trusses. The individual flowers are larger and of a rosier hue than those of the type, and they come a little later.

Dendromecon rigidum opened the first of its fragrant, golden yellow blooms earlier than usual, the branches not having been cut back. Solanum crispum was only a few days later. Ceanothus rigidus (on a west wall) is the earliest by several weeks of its genus, and its violet clusters never fail to excite admiration. The very stiff and straight growths of this species, together with the small, leathery leafage in a dark, glossy green, promise to make a first-rate support for Mutisia decurrens, and should make a pleasing setting for the gorgeous flowers of that noble Composite.

Phillyrea latifolia (syn. P. media), which has been here for many years without flowering or growing to more than four feet or so, has been full of blossom this spring, the white, fragrant flowers being crowded in axillary clusters. Near to this, in an open part of the woodland, is Osmanthus Delavayi, a singularly choice little shrub with waxen-white, deliciously-scented, tubular flowers.

Though not now considered among the choicer Rhododendrons, few of the dwarfer members of the genus grown here attract more admiration than that old North American species, R. punctatum, and its clear, pink flowers, in neat little trusses, are certainly very charming in the part shade of the woodland. Under similar conditions, the taller R. yunnanense, with blossoms of a much paler hue, is also delightful. The large-flowered, pure-white R. ledifolium and the rose-purple, double-flowered var. plenum, are very noteworthy objects in this section, but while both are perfectly hardy here they are rather liable to be touched by spring frosts, unless they have such protection as may be afforded by the branches of tall, deciduous trees.

Gaultheria Veitchiana is well furnished with its axillary racemes of pinky-white blooms, and G. trichophylla, choicest of the more lowly species, is promising a goodly crop of its incomparable blue berries. Vaccinium corymbosum, a tall, deciduous, North American species, is one of the best of its race, for it is not only good in spring, with its tender green foliage and abundant clusters of large, pinky-white blossoms, but the blue berries are distinctly effective, and the autumn coloration of the foliage extremely brilliant. This Vaccinium will, moreover, flourish in any average lime-free loam that is not excessively dry. Phyllodoce empetriformis is worthy of more than passing mention, and one wonders why it is so seldom seen in gardens. It is a success in a cool, light loam, and comes into flower in spring, just as Erica carnea goes off; its bright reddish-crimson bells are singularly attractive. Not less easy is its ally, Phyllothamnus erectus, a dainty little shrub with terminal clusters of large, bell-shaped blossoms in a vivid rose. These two, with the pretty Kalmia glauca, make a trio of Ericaceous shrubs of the utmost charm and usefulness at this season.

Both Shortia galacifolia and S. uniflora blossomed unusually early this season, for when I returned from abroad at the end of April, the plants were carrying nothing but seed-heads. Another plant which was evidently rushed into blossom by the warm weather at Easter is Meconopsis quintuplinervia. There were spent flowers on this also by the date mentioned, but the Harebell Poppy has a longer season than Shortia, and there is still a good crop with more to follow of the lovely lavender-blue blossoms.

Very delightful in the cool, but light loam enjoyed by the above, is Oxalis Acetosella rosea, which has become quite naturalised, blending with the type species and other native herbage. Yet another very beautiful wildling is the pale blue form of Anemone nemerosa, often called the Welsh Anemone. In the woodland and by the waterside, A. trifolia has proved a splendid coloniser, making broad drifts of its pale green leafage, which is starred with the milk-white flowers for several weeks at this season.

Rising out of the bog are the eighteen-inch flowering stems of Helonias bullata, a Liliaceous plant, the starry flowers of which, in a pleasing pink, appear in a large, cone-shaped cluster at the ends of the stalks. Of the same tint is a colony of the pink form of Primula pulverulenta. These never fail to rivet the attention of visitors, who are also delighted with the Globe-flowers which are once more substantiating their claim as being amongst the most valuable of spring-flowering, waterside subjects. With the exception of Trollius europaeus, the earliest of the Globe-flowers to bloom here are invariably the hybrids of garden origin, the species generally being fully a month later.

The big, yellow spathes of Lysichitum camtschatcense—half-a-dozen on a single plant—make a conspicuous dash of colour at the edge of the stream over which the yard-long stems of Caltha polypetala are reaching. With these and other things which are left very much to fend for themselves, the purple flowers of Cardamine macrophylla are by no means to be despised. Omphalodes cornifolia (cappadocica) is abundantly naturalised in this part of the garden. There is no more useful plant than this for spring flowering by the waterside or in cool, woodland places, but I find that it is always best to afford the plant some slight natural protection from frost and wind, otherwise the delicate beauty of the flowers is apt to be marred. *A. T. Johnson, Ro Wen, Conway, North Wales.*

SALES OF DISEASED PLANTS.

THE Sales of Diseased Plants Order 1927, which is dated the 22nd April, 1927, and which came into operation at the end of that month is a measure with which every gardener ought to become acquainted. This Order, which was passed under the powers given to the Minister of Agriculture by the Destructive Insects and Pests Acts of 1877 and 1907, provides that no one may sell or offer for sale, for planting, any plant which is attacked by certain insects or pests, or any plant which appears to have been attacked by certain other insects or pests.

Secondly, everyone who has had in his possession or under his charge any plants attacked by these insects or pests must give all the information he can as to the person in whose possession they have been, if required to do so by the Minister of Agriculture.

Thirdly, the Order gives Inspectors of the Ministry of Agriculture power to enter premises where plants are offered for sale, for the purpose of examining them.

In order to prevent the sale or movement of diseased plants, anyone who has possession of them must take steps to prevent their sale or movement, except under the authority of an Inspector.

The Order further gives an Inspector power at any time, by notice served on the person who has such plants in his possession, to require him to take one of the following courses:

(1) To destroy the whole or any part of the plant by fire or such other suitable method as may be specified in the notice;

(2) To disinfect the plant to the satisfaction of the inspector; and

(3) To take such other steps as the Inspector may consider necessary to prevent the spread of disease.

The notice may also state a time within which it is to be complied with.

As regards the pests to which the Order refers, if the plant is actually attacked they are, in the case of trees: Fruit Tree Cankers, American Gooseberry Mildew, Silver Leaf, Black Currant Mite, Woolly Aphis, all Scale Insects, Brown Tail Moth, Rhododendron Bug; and, for vegetables and roots, Powdery or Corky Scab of Potatos, while if the plant merely shows evidence of having been attacked by Apple Capsid it will come within the provisions of the Order.

The penalty for selling or offering for sale any plant attacked by these insects or pests, or for failing to take the steps required in a notice given by an Inspector, or for impeding an Inspector is a fine of £10.

The Act defines a "plant" so as to include tree and shrub, and the fruit, seeds, tubers, bulbs, layers, cuttings or other parts of a plant. *H. S.*

NOTICE OF BOOKS.

Frost and Light.

DR. KINZEL of the Bavarian Landesanstalt für Pflanzenbau und Pflanzenschutz (Munich, Liebigstr. 25) has been busy for many years with most careful experiments on the conditions of seed germination. He has already published three volumes of detailed reports, and has followed the slowly germinating seeds for years. Many of his experiments have been made in Petri dishes in dark cupboards indoors, but he has also exposed other seeds to the influence of frost and light before attempting germination.

He reports that particularly with alpine plants exposure to frost helps germination. In the present volume* results are summarized thus:

Gentiana cruciata	L	18./9	— — — —	— 43 78
O.B. Landsberg	LF$_2$		— — — —	— — 96 ●
a.L. 8.9.21	DF$_2$		— — — —	— — 1 87 94

from which we understand that a sample of seed of Gentiana cruciata was gathered at Landsberg on the Lech, in Upper Bavaria, on September 8, 1921. Three samples of seeds were sown on September 18, one in light, one in light with exposure to frost, and one in the dark with exposure to frost. No germination was observed during the last four months of the year, and none in January. Of the first sample, 43 per cent. had germinated in February, 78 per cent. in March, of the second sample 96 per cent. in March, and all in April; of the third sample only one per cent in March, but 87 per cent. in April and 94 per cent. in May. The table is continued into later years showing the germination of the first sample as complete in the third March, and that of the third sample as complete in the second April.

---

* *Neue Tabellen zu Frost und Licht als beeinflussende Kräfte bei der Samenkeimung.* By Prof. Dr. Wilhelm Kinzel. Eugen Ulmer, Stuttgart, Olgarstrasse, 83. Price 20 Marks.

So long as we are content to try only those seeds that will certainly grow, like Mustard and Cress, we shall have little use for Dr. Kinzel's tables, but the ample lists of English seedsmen will extend the list of species on which we may venture. However, with a more adventurous list of desiderata we may value the hint to expose to light at 20°C, Anemone ranunculoides, Erica carnea and Iris Pseudacorus; to dark and warmth, Delphinium elatum, Galanthus nivalis and Gladiolus communis; to light and frost, various species of Gentiana, Primula and Saxifraga; to dark and frost, Trollius europaeus; to dark and mild frost, Lilium Martagon; to light and mild frost, Primula rosea and P. imperialis. Of Gentiana ciliata it is reported that some 5,000 seeds remained fresh but ungerminated for twelve years; probably special earth containing definite fungi or nutritive material is necessary.

These laboratory results should be compared with gardening experience, such as that of M. Henri Correvon of Chêne-Bourg, near Geneva, published by him in *Les Plantes des Montagnes et des Rochers* (Paris, Doin et Fils, 8 Place de L'Odéon), in which he classifies alpine plants under some nine different treatments. We may now turn with renewed courage to some of the continental seedsmen's lists, such as Correvon's *Liste des Graines*, with some seventy Gentians and over one-hundred-and-fifty Primulas, or Haage and Schmidt's somewhat more modest list of *Blumen-Samen-Stauden* (Flower seeds—herbaceous). Messrs. Barr and Sons also offer a list of Gentians and Primulas a little longer than is found in most English catalogues.

Dr. Kinzel's books which have cost so much labour, should go only to those who can appreciate them. They may be specially commended to seed-testing stations and to those who are trying to raise alpines from seeds or who are receiving new and rare flower seeds from distant lands.

If Dr. Kinzel is right about the effects of light and frost in laboratory experiments, his results ought to be checked under gardening conditions. This may involve some amendment of the cultural directions printed on the packets in which seeds are sold (*e.g.*, "sow in November"), and some satisfaction to the complaints of amateurs that seeds from their local seedsmen do not grow.

There remain some further questions which should go back to the laboratory:—Why do light, frost or certain fungi seem necessary for germination? Will any sort of light do equally well? Is there any advantage in ultra-violet light? Should seeds be protected by something which stops or which transmits ultra-violet rays, *i.e.*, by vita-glass, or windowlite, or fused quartz? Or has the ancient practice of covering seeds with white quartz sand any merit for transmitting ultra-violet rays. Is the blackness of some seeds coats (Aquilegia and Trollius) useful for absorbing light, or for stopping light from penetrating the seed?

How does frost work on seeds? Is it by concentrating the cell contents into still more complex molecules, which, when afterwards dissolved, would have a still higher osmotic pressure? Or does frost disintegrate seed coatings? Or is actual frost not really necessary but only a wide oscillation between maximum and minimum temperatures? Does water enter the micropyle in the seed as it enters the narrow tube when a thermometer is filled by alternately heating and cooling the bulb? Is liquid water ever necessary to germinating seeds, or do they all always germinate in an appropriate pressure of water vapour?

Why are special soils necessary for certain seeds (? Gentiana ciliata). Is it on account of fungi which attack the seed coatings, or on account of some symbiosis of seedling and fungus, or on account of some nutritive (? organic) chemical produced by the fungus? It is possible to add any chemical (sugar, glucose) to the soil which might stimulate the life of the fungus, or any other chemical, perhaps an organic acid (? tartrate), such as might be produced by the fungus, which would directly stimulate the life of the seedling? Does the visible splitting of a Peach stone when the kernel germinates throw any light on what happens in much smaller seeds? *Hugh Richardson.*

VEGETABLE GARDEN.

BRUSSELS SPROUTS.

To obtain the best results with Brussels Sprouts it is necessary to grow the plants in deeply-worked, moderately rich, firm soil, which is not deficient in lime. A good strain and ample room for the development of the plants are other important details.

As Brussels Sprouts require a long season of growth, it is important to plant them in their final quarters during May or in early June for early supplies, and the later ones so soon as they are large enough. Firm planting is essential. Where the space can be afforded, three feet apart each way is not too much for the large-growing varieties, and two-and-a-half feet for the smaller types.

If intercropping is practised nothing should be attempted that will interfere with the main-crop; it is not good policy to grow Brussels Sprouts as an intercrop with Potatos.

Should the weather prove dry at the time of planting, puddle the plants rather than delay the operation too long by waiting for more favourable conditions. When well established, the plants will benefit by a little soil being drawn up to their stems. The soil should be hoed on frequent occasions, and a sharp watch maintained for insect pests. Constant attention in the removal of decaying leaves during autumn and winter is advised to allow the air to circulate freely amongst the plants. The removal of the head should not take place until all the sprouts are picked; the latter should be gathered from the bottom upwards as they become fit. If desirable, plants from one sowing will continue in bearing over a considerable period.

Choice of variety will depend on the purpose for which the crop is required. For private establishments, small sprouts are favoured, and a good variety of this type is Filbert, which was exhibited by Mr. Edwin Beckett at one of the R.H.S. meetings recently. Market growers prefer sprouts of large size, such as Covent Garden Favourite and Evesham.

Varieties may be roughly divided into dwarf and tall forms, respectively. Good representatives of the former are Dwarf Gem, Half Long Paris and One and All. The last-named is a German variety which produces small, firm sprouts, and may be highly recommended for private gardens. An Award of Merit was given to this variety during a trial of Sprouts at Wisley in 1923.

Of the taller forms, Aigburth, Darlington and Holborn Exhibition produce good, firm sprouts of a useful size. *J. Wilson, Wisley.*

CABBAGE ROOT FLY.

(Chortophila brassicae, Bouche.)

This pest is making its appearance in most parts of the country. If the soil around the stems of Cabbages is examined carefully the eggs of the fly will be found. The eggs are small and white but may be seen quite easily with the naked eye.

In this country we get two generations of the pest each year. In hot, dry seasons we occasionally get a third generation, but this happens so spasmodically that it is not considered further in this note. The first generation emerges from the winter puparium state about the second or third week in May. After pairing, the females deposit their eggs in, or on the soil close to the stems of Cabbages, etc. The flies are very fond of creeping down into the soil where the stem of the host plant has been swaying about in the wind and formed a hole. Eggs from this first generation reach the maggot stage about the end of May or early June.

The second generation appears about five weeks after the first, but instead of forming a third generation the pupae from this generation usually remain until the following spring. There is, of course, much overlapping between the generations, which accounts for the fact that at certain periods it is possible to find adults, eggs and fully-fed maggots. In spite of this overlapping the two main attacks centre themselves fairly definitely at the two periods stated above.

It appears to me that in the control of this pest we often overlook one important point, namely, the attack of the first generation. This attack usually takes place on autumn-sown Cabbage, and is often totally unnoticed. On the other hand, the second generation attacks newly-planted out summer and autumn greens; this attack is rarely missed and much is done to ward off its evil. Each year, with me, the first flies are to be found on the wing about the 14th to 21st of May; last year they were seen as early as the last week in April. Eggs are always laid on autumn-sown Cabbages, which at that time are established plants and have a fairly big root-system. Such plants can carry a fair crop of maggots without showing very much sign of their presence above ground. Because this first attack does not advertise itself very much by killing off numbers of plants it is often overlooked altogether

The arrival of the second generation is quite another matter; it occurs about the time of planting out Cauliflowers, summer Cabbages, Brussels Sprouts, Broccoli, etc. Such plants are not established plants, even if they have become settled in their new quarters; they have very small root-systems and can carry very few maggots without showing signs of distress. In a very short while the pest eats away the whole of the root-system of the young Brassicas, and down the plants go. This is the attack we are all so familiar with, and most of us try various methods of control. Methods of control are often adopted too late in the season. If the grower could reduce the attack of the first generation on the established Cabbage plants he would have an easier task with the second generation. It may be argued that the size of the root-system of the attacked plants has nothing to do with the fact that the first attack often passes unnoticed and that a better reason is that the second generation has so increased in numbers that it is able to do much more damage. This increase may be true, but I have lifted Cabbages just about ready for cutting during the attack of the first generation and found twenty to thirty maggots present, and the plants appeared quite normal above ground. If those twenty or thirty maggots had been present on a newly-planted-out Cauliflower it would have been a different matter.

Much has been written on the control of Cabbage-root-fly, and the methods advocated fall more or less into three groups:—(1) Prevention of egg-laying; (2) Killing the maggots; (3) Winter treatment of the soil to kill the puparium stage.

(1) Prevention of egg-laying.—Many things have been recommended to deter the Cabbage-root-fly from laying its eggs near the host plant. The main idea always is to make the surroundings distasteful to the fly. Tarred felt discs, paraffin oil, carbolic acid, creosote and many other things have been used with a fair amount of success. I have tried most of these materials, but have had the greatest success with creosote. I advocate the method recommended by Smith,* of Manchester University, namely, quarter-ounce creosote mixed with twelve ounces of precipitated chalk. In practice I have found that one ounce of creosote added to three pounds of chalk and thoroughly mixed together is a useful unit. I find, too, that the preparation is best mixed twenty-four hours before it is used. I do not sow the mixture over the whole of the soil but place about half-an-ounce around the collar of each plant. The application should be repeated at intervals of ten to fourteen days during the dangerous period. In the past sand has been very largely used as a spreader for various chemicals to deter Cabbage-root-flies from egg-laying. Smith recommends that sand

---

* The Control of Maggots attacking the Roots of Vegetables. *Journal of the Ministry of Agriculture.* Vol. 29, No. 3, page 280, by Kenneth M. Smith, A.R.C.S.

should not be used as a spreader for the creosote, as it does not absorb the chemical.

(2) Killing the Maggots.—This is a much more difficult matter than the prevention of egg-laying. Again, many things have been recommended from time to time, *e.g.*, sulphate of ammonia, nitrate of soda, common salt, liquid ammonia, corrosive sublimate, etc. Each of the first four mentioned I have tried from time to time. I find that they will all kill very young maggots but that they are useless for the destruction of older ones. I have also used crude naphthaline with even better results. It should, however, be pointed out that naphthaline must be applied before the maggots are very far advanced, because if it is not used until all the roots have been eaten, although the naphthaline may kill the maggots, it does not save the plants. Apply the naphthaline by first mixing it with a spreader; my mixture is naphthaline, one part; dry garden soil, three parts; applied at the rate of one ounce per plant. Thus each plant gets one-fourth of an ounce of naphthaline. I find that the naphthaline mixture is useless in dry weather: it must either be applied in showery weather, or else the plants must be watered after the application. This year I am hoping to use both corrosive sublimate and also calcium cyanide to test their usefulness.

(3) Winter Treatment of the Soil.—All soil that has borne an infested crop should be treated with a reliable soil insecticide. Crude naphthaline, applied at the rate of two ounces per square yard, gives very good results. When using a soil insecticide for this purpose it is best to delay the application as late in the spring as is practical. The naphthaline should be spread evenly on the top of the soil and well forked in. I have not found that the naphthaline retards the next crop to any marked extent.

In any attempt to control Cabbage-root-fly it is important to start with the first generation. We must look for, and attack, the generation that carries out its life history on the autumn-sown Cabbage and not wait until the second generation comes later. *Somerset.*

HOME CORRESPONDENCE.

The Problem of Bolting.—I read the remarks of *A. B. B.* on this subject (p. 320) with interest, but found in it very little elucidation of the problem. I am very strongly of opinion that the main causes of bolting are to be found in cultural errors. Last year I sowed White Milan Turnips twice, fairly early, and on ground not manured the previous season. The first sowing, made on good, deeply cultivated soil, produced a crop, only a few of the plants bolting after the Turnips were formed. The plants of the second sowing, on ground not so well cultivated, proceeded directly from seedling to flowering stage, without showing a sign of bulbing. I have grown Globe Beetroots on ground unmanured as well as manured, and have had a small percentage bolt in both cases. Last winter I came across a whole row of white Celery which had bolted, and on enquiring, I learned that the seedlings had not been planted out in the trenches at the time they were ready, but had had to stand in frames for some time. Early sowing of Cabbage is considered to promote bolting, but of that I am not convinced. Thorough cultivation of the ground, according to the needs of the various subjects, and the growing of crops without any undue check, from seedling stage to maturity, will, I believe, practically solve this problem. Of course, there are checks provided by the weather which it is impossible to guard against, and these, no doubt, play their part. It would be interesting to have the views of others. *C. Fletcher, The Gardens, Stowe School, Buckingham.*

Damage by Frost at Aldenham.—I observe that in your issue of May 21, Sir Herbert Maxwell states that the injury inflicted on his plants by spring frosts has not been so bad as it was last year, when they occurred later in May. With us, at Aldenham, I am sorry to say it has been incomparably greater; indeed, I have no hesitation in stating that the frost of 17° which occurred on May 1 was the worst spring frost that I have ever known; it followed on two other very severe ones, 15° and 13°, respectively, and all three were subsequent to the midsummer temperature at Easter, which brought numerous plants into full leaf. The devastation produced was really appalling, not only the foliage being burnt black, but in many cases two-year-old wood being killed; indeed, it is too early yet to say how much of the branches of trees and shrubs has been ruined. Absolutely hardy plants have suffered as much as those usually regarded as tender; the common Hazel, for instance, common Ash, and subjects capable of contending against winter conditions in Massachusetts, like Cercidiphyllum japonicum, have all been seriously disfigured, even if not crippled. Many Maples have been desperately injured, and two well-established trees of Acer japonicum, about fifteen feet high, have, I fear, been killed outright. A large shrub of Indigofera which was a sheet of rose-red flowers last summer, is killed to ground level, as also is Polygonum vaccinifolium, and nearly every other species of that family. Although last winter was a mild one with only two really cold nights, yet one frost of 21° occurred before winter ought to have begun, and the other 17° after it ought to have ended; the two combined have done untold damage. Evergreen subjects have in almost every case escaped, even some, such as Cunninghamia lanceolata, which I should have expected to succumb altogether, and, much to my surprise, Tree Paeonies also have been untouched and have flowered as well as ever. The Rose garden is a shocking sight, and all hope of June flowering is gone; some plants are killed outright and many more maimed. Perhaps the two varieties which have suffered most are Lady Hillingdon and Mrs. Wemyss Quin. Deciduous Barberries of Chinese origin have also been victimised, and many are so badly seared that they have had to be cut back to within a few inches of the ground. I shudder to think what the slaughter would have been if the country had been wet instead of dry when this cruel visitation took place. Even our Nettles have not got off scathless, but where there is so much to grieve over I bear this with remarkable equanimity. I must not omit to mention that every Hydrangea, Diervilla, Philadelphus and Deutzia shows woeful evidence of the untimely cold to which they have been subjected. I will leave others to tell in detail of what has happened to their fruit, but I will just add that all Plums, Damsons and Strawberries are wiped out, while Pears, Apples and Gooseberries will at best be only a half-crop. *Vicary Gibbs, Aldenham House.*

Deterioration of Strawberry Plants.—I can endorse all that Mr. Hartless has written, on p. 358, with reference to the deterioration of the Strawberry during recent years. It has been very marked during the past few years in these gardens, and this year the indications are that it will be even more apparent than ever, and it is bitterly disappointing when special efforts have been made to overcome it. Last season, when gathering the fruits, I rooted up all plants that showed any sign of deterioration, both as regards fruit and foliage, and I followed this up with a further weeding out before layering the runners for this season's beds. I examined every runner before planting them in the autumn and threw out scores of plants the men brought me which they themselves would have planted in my absence, and now, after all this, I have the most miserable, newly-planted bed of Strawberries I have ever seen here. I may add that during the past fourteen years I have several times renewed the stock by purchasing runners from the best sources. I have tried most of the varieties in commerce, and The Duke, Royal Sovereign and Bedfordshire Champion having proved most meritorious, constitute our stock. In an adjoining garden where a new bed was made last year with new stock from a firm which specialises in Strawberries, the same state of affairs exists. It will be helpful if readers will name varieties that are resistant, and I hope the Ministry of Agriculture's scheme of certification may lead to better results in the future. *T. A. Summerfield, Alderley Park Gardens, Chelford.*

SOCIETIES.

CHELSEA SHOW.

(*Concluded from page* 384).

Rhododendrons and Azaleas.

The various collections of Rhododendrons and Azaleas, both in the tents and in the open, added masses of brilliant, glowing colour which amply provided the needed brightness. In one of their groups, Messrs. Waterer, Sons and Crisp had a splendid plant of Corona bearing many trusses of rich, rosy coral flowers. In the companion group the centre was filled with excellent bushes of Pink Pearl. Chief amongst their other good varieties were Joseph Whitworth, purple and maroon; Diphole Pink, Gomer Waterer, white flushed with lilac; Monstrous, a gigantic pink truss; Doncaster, deep red; Sappho and Baroness Henry Schröder, large trusses of white flowers heavily spotted with crimson-maroon; Elsa Crisp, deep pink; Starfish, bright pink, and Bagshot Ruby.

In association with their attractive group of Liliums and Irises, Messrs. R. W. Wallace and Co. had a showy group of excellent Rhododendrons. There were well-flowered bushes of Britannia, Pink Pearl, White Pearl, Countess of Athlone, blush; Corona, rosy coral; Betty Wormald, pink with a white centre; Doncaster, Duchess of Edinburgh, edged with rich pink; Corry Koster, blush with undulated margins; Cynthia, deep pink, and Alice, deep blush.

A charmingly arranged group of Rhododendrons was displayed by Mr. Walter C. Slocock. The bushes were set in a mossy ground with blue Scillas and Blechnum spicant. The principal Rhododendrons were Lady de Rothschild, Royal Purple, Goldsworth Yellow, Purple Splendour, Pink Pearl and Lady Grey Egerton.

Fifty of the older varieties were displayed by Mr. T. Lewis, who finds them to be often more generally satisfactory than some of the more recent sorts. He grouped very good bushes of Rhododendrons Doncaster, G. A. Sims, Bagshot Ruby, John Waterer, Sir Robert Peel, Miss E. C. Stirling and Lady Grey Egerton, and also included several good specimens of Kalmia latifolia. In the tents, groups of Rhododendrons were also arranged by Messrs. M. Koster and Sons and by Messrs. L. J. Entz and Co., and the latter also showed Azaleas.

In the tents, Messrs. R. and G. Cuthbert had a magnificent corner group of deciduous Azaleas, which yielded glowing masses of colour. There were tall standards of double Azalea rustica varieties, such as Corneille, Ribiera and Phoebe. Many excellent mollis, occidentalis and Ghent varieties, as well as hybrids between A. mollis and A. sinensis were also represented by profusely flowered bushes. Messrs. M. Koster and Sons arranged beds of hybrid Rhododendrons and Azaleas of merit at the opposite side of the tent.

Trees and Shrubs.

While the exhibits of hardy Rhododendrons and Azaleas provided masses of brilliant colouring, the collections of general hardy trees and shrubs were of considerable interest and often arranged with great skill and taste. Messrs. Hillier and Sons had two valuable groups in which the dominant items were Bamboos, Japanese Cherries, Brooms and Hydrangeas. In addition to a good selection of these they included Wistarias, Viburnum Carlesii, Rosa Hugonis, Xanthoceras sorbifolia, Fuchsia parviflora, Actinidia Kolomikta, which has leaves half green and half rose-coloured; several large flowers of Paulownia imperialis from a tree over twenty feet in height, growing in their nursery at Winchester; and a fruiting plant of Musa japonica, syn. M. Basjoo.

A considerable corner space was well filled by Messrs. J. Cheal and Sons with many Rhododendrons and Azaleas, Japanese Maples of bright colouring; standard Brooms, Ceanothuses, Kalmia latifolia, Wistarias, Brooms, Berberises and several varieties of Philadelphus. Messrs. Daniels Bros. had an attractive group of various Crataegus, Brooms and Roses rising above a groundwork of Hydrangea paniculata grandiflora, and bordered with a good strain of Aquilegia hybrids.

A very effective arrangement of Brooms and Japanese Maples was made by Mr. R. C. NOTCUTT. The chief Cytisus were Dallimorei, kewensis, Cornish Cream, pallida, scoparius Dragon Fly, sessiflorus and Donand Seedling. In another place Mr. NOTCUTT had a group of miscellaneous shrubs, including Tamarix tetrandra, various shrubby Ceanothuses, Viburnum macrocephalum, Corokia Cotoneaster and deciduous Azaleas.

Several very large, shapely and well-coloured Japanese Maples were arranged by Mr. J. C. ALLGROVE, with Rosa Hugonis, Cytisus Dallimorei, C. pallida and a selection of Lilacs. Two groups exhibited by Mr. G. REUTHE contained many interesting shrubs. The chief were Tricuspidaria Hookeriana, Embothrium coccineum, Cestrum coccineum, Mitraria coccinea, Philesia buxifolia, Telopea speciosissima, Eucryphia Billardieri, a beautiful species illustrated in *The Gardeners' Chronicle* thirty-five years ago, but now a very rare shrub; Davidia involucrata, and many Rhododendrons, including the rich, orange-coloured R. Griersonianum.

On the staging, Messrs. W. AND J. BROWN had a good selection of Lilacs, which included President Carnot, Madame Lemoine, Chas. Joly and Michael Buchner of the double-flowered varieties, and such good singles as Congo, Souvenir de Louis Spaeth and Marie Legraye. With the Lilacs they displayed well-flowered plants of Salvia Harbinger and Heliotrope Lord Roberts. Mr. CHARLES TURNER also had a good collection of Lilacs, including most of the varieties named above, and Charles Sargent and Arthur W. Paul. They also showed branches of Cercis Siliquastrum, Tamarix africana, Ceanothus floribunda and C. divaricatus.

The YOKOHAMA NURSERY Co. staged many very fascinating dwarfed Japanese trees of perfect form. They had very old examples of Cupressus obtusa, many Pinuses, Larches, Spruces, Junipers, Maples and Azaleas, all of great age, but very healthy. In their collection of new Cytisuses, Messrs. C. WATSON AND SONS included the variety Lord Lambourne, which received an Award of Merit, an unnamed seedling of beautiful rose and pale golden colouring, and several other desirable sorts. Mr. G. G. WHITELEGG displayed a white variety of Wistaria multijuga with Rhododendrons and deciduous Azaleas, and bordered their exhibit with various alpines.

In their groups of shrubs, Messrs. R. GILL AND SON gave the central place to a large stand of Embothrium coccineum. They also showed Tricuspidaria Hookeriana, Drimys Winteri, Abutilon vitifolium, Calceolaria violacea, Magnolia Watsonii, Pittosporum crassifolium, Rhododendron Griersonianum, R. decorum and R. Dalhousiae.

The only exhibit of Clematis was a very handsome circular group arranged by Messrs. G. JACKMAN AND SONS. This included splendid plants of the purple Jackmanii, The Bride, W. E. Gladstone, lavender, The President, rich purple; Lord Londesborough, pale lavender; Lord Neville, deep lavender; Jackmanii rubra, of rich colouring; Gloire de St. Julien, blush lavender; Mrs. Spenser Castle, double-flowered lavender; Beauty of Worcester, double lilac; and the popular Nellie Moser.

The several large groups of trees and shrubs in the open received a deal of admiration during the first two days of the show, and even during the rain on Friday they received attention from lovers of trees and shrubs. Messrs. WATERER, SONS AND CRISP had many large Rhododendrons, Enkianthus campanulatus, Berberis verruculosa, Brooms, Maples, Azaleas and a good selection of Conifers. Mr. H. HEMSLEY grouped Rhododendrons and Azaleas with Brooms, Grevillea rosmarinifolia, Cornus Mas variegata, Tricuspidaria Hookeriana, Fabiana imbricata, Senecio Grayi and other desirable shrubs.

A good selection of ornamental vines, arranged by Messrs. L. R. RUSSELL, LTD., included Vitis Henryana, V. repens and V. Coignetiae. They also showed Ceanothus floribunda, C. divaricatus, C. papillosus, many Japanese Maples, Brooms and Azaleas. Messrs. HILLIER AND SONS and Messrs. FLETCHER BROS. had collections of shapely Conifers, and the latter also included various Brooms, Maples and Rhododendrons.

Many interesting Conifers, including the new Cupressus Lawsoniana erecta aurea and Cryptomeria japonica alba spica were arranged by Messrs. HOLLAMBYS, LTD., who also displayed Osmanthus illicifolius variegatus and some well coloured Japanese Maples.

A large and very complete collection of Japanese Maples was arranged by Messrs. W. FROMOW AND SONS. This included Acer palmatum atropurpureum and A. p. sanguineum, of brilliant colour; A. p. dissectum palmatifidum, A. p. d. variegatum, A. p. d. atropurpureum, and A. p. d. ornatum, with very finely divided foliage, and the beautiful Acer palmatum roseo-marginatum.

Topiary specimens were extensively shown along Monument Road. Messrs. WM. CUTBUSH AND SON, Messrs. HARRODS and Mr. J. KLINKERT were the exhibitors. Box was the shrub used the most, but there were also good examples in green Yew, while the first-named exhibitor had many specimens in Golden Yew. Messrs. ROBERT GREEN, LTD., had a very large collection of Bay trees.

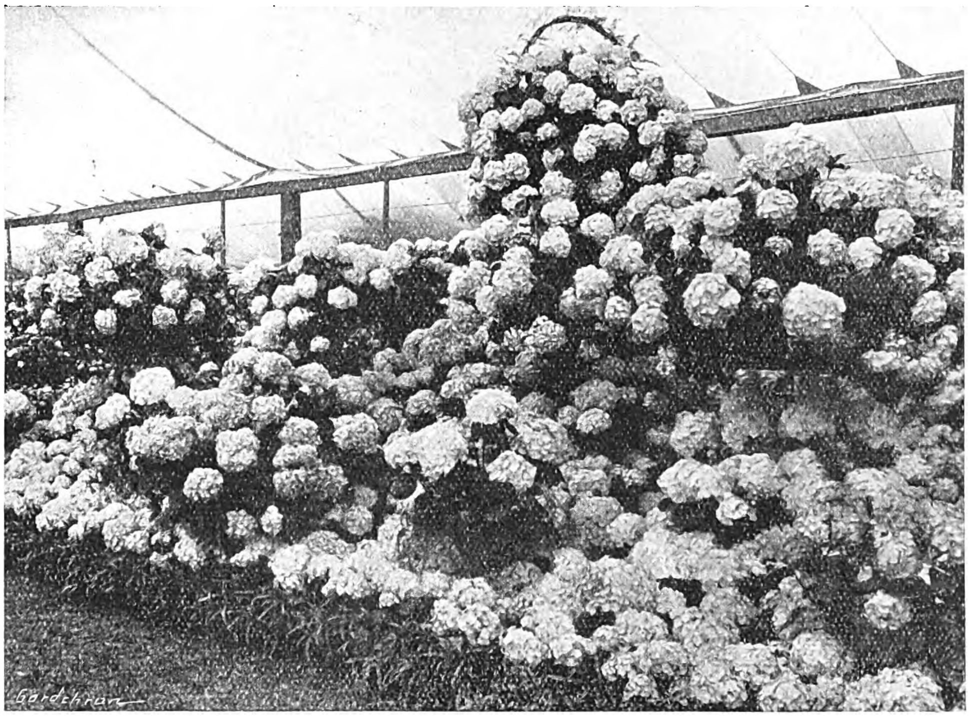


FIG. 192.—CHELSEA SHOW: MR. PHILIP LADD'S EXHIBIT OF HYDRANGEAS (see p. 378).

Miscellaneous.

The large, circular group of Dahlias in pots, so well arranged by Messrs. CARTER PAGE AND CO., received a deal of attention from lovers of this autumn flower. The plants were well-flowered and represented most sections, though the Decorative, Miniature Paeony-flowered and Cactus varieties were the most prominent. Messrs. J. CHEAL AND SONS had a good selection of cut flowers of the different types, and Messrs. J. FORBES, LTD., showed dwarf, floriferous plants of Dahlia Coltness Gem with their Pelargoniums and Violas.

Messrs. TOOGOOD AND SONS, LTD., set up a very attractive collection of greenhouse plants which included Clarkia Salmon Queen in quantity, many Dutch Irises in such varieties as White Excelsior, The First, Rembrandt and Van Everdrugen. These were flanked with Schizanthuses of a good strain, while Cinerarias, Nemesias, Mignonette, Palms and Ferns all helped to make an effective group.

A good collection of profusely-flowered Fuchsias, growing in relatively small pots, was arranged by the CASTLE NURSERIES. The chief varieties were Fascination, double blush Achievement, The Doctor, Emile Zola, Ballet Girl, Mauve Beauty and a variety of F. fulgens named Thalia. Mr. R. J. CASE had good Zonal, Pelargoniums. His principal varieties were New Life, an uncommon double with small pale pink and orange-coloured petals; President, Baillet, semi-double orange; Marjorie Slade, bright crimson double; and Chavarri Hermarros, a vivid scarlet double variety. Mr. J. C. BECK had a small collection of his perpetual-flowering Carnation Mrs. A. A. Vlasts, a robust variety, which has fragrant, rosy-purple flowers edged with silvery white.

In association with their interesting collection of greenhouse plants, Messrs. STUART LOW AND CO., had a handsome collection of Carnations. The chief varieties were Sir Philip Sassoon, Sheila Greer, Betty Loo and White Pearl. Adjoining the Carnations they showed a good selection of Hippeastrums and various Australian plants, including some especially well-flowered specimens of the Bottle Brush Tree, Callistemon salignus. There were also good examples of Aotus gracillima and Leptospermums.

Science and Art.

We were pleased to note that the Science Tent, which was placed next to the Orchids, was much more popular with the visitors than formerly was the case. The R.H.S. and the various establishments which had exhibits were especially fortunate in their choice of representatives, and the visitors found at all times, keen men, ready and willing, and what is even more important, capable of imparting valuable information concerning the exhibits under their charge.

The most extensive exhibits were from Wisley, and these were of considerable scientific and practical value. An excellent range of photographs, supplemented by fruiting Plum trees, fully illustrated the many aspects of pollenation of fruits, and impressed on the public the fact that many varieties are self-sterile, and that cross fertilisation is essential to the production of good crops of fruit. The more general fungous diseases were illustrated and valuable suggestions were offered for their prevention and cure. There were also diagrams and mounted specimens of the more common biting and sucking insects which bother the gardener, and here again the best remedial measures were indicated. The diseases of flowering plants which were represented included the Aster Wilt, Carnation Stem Rot and the "New Mildew Disease" of Sweet Peas which was dealt with so well by Mr. W. J. Dowson in the R.H.S. *Journal* of July, 1924.

The Rothamstead Experimental Station had exhibits illustrating the make-up of the soil in its physical, chemical and biological aspects. This exhibit amply repaid the cultivator for any time spent in studying the diagrams so well set out, for he could learn the intimate connection between the physical, chemical, bacterial and biological characters of the soil. Of great value also was the apparatus for determining the amounts of sand, silt and clay in the soil, and humus, and its origin. The importance of a knowledge of the fungi, algae and insects of the soil was also well illustrated, and this included cultures of the useful fungi which cause the decay of plant remains, transforming them into valuable soil constituents, while, on the other hand, the harmful fungi cause diseases. The soil insects, ranging in size from the easily seen millipedes and centipedes to microscopic insects were dealt with equally well, and these were divided into three classes: the injurious, the neutral and the beneficial.

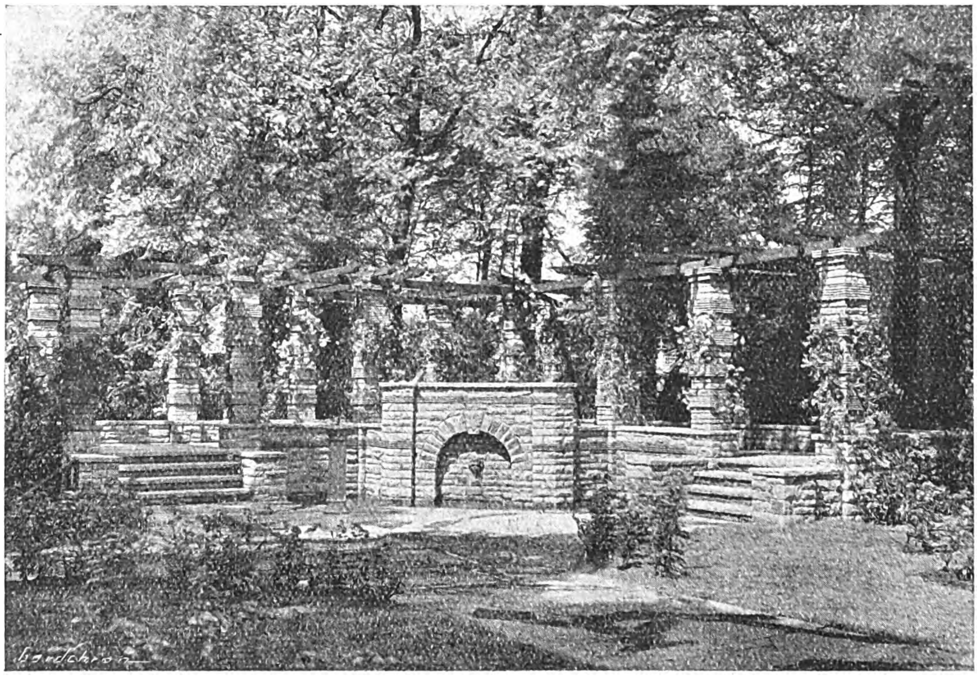


FIG. 193.—CHELSEA SHOW: MESSRS. PULHAM AND SON'S FORMAL GARDEN.

(see p. 382.)

From the Cheshunt Experimental and Research Station were sent plants and models illustrating certain diseases. The chief were the Mosaic diseases of Tomatos, Tobaccos and of the Aucuba. There were also plants showing the different stages of the foot-rot of Tomatos. In addition to these illustrations of plant diseases, there were scale models of apparatus, including a steam engine, for the steam-sterilization of the soil over large areas.

The Seale-Hayne Agricultural College contributed specimens illustrating the diseases and pests of Daffodils, such as Narcissus Leaf-spot and Narcissus Bulb Eelworm, with others on Tulip Fire and the Rosellinia Rot of Arum (Richardia). The Imperial College of Science and Technology was represented by electrical apparatus for measuring the rate of growth in plants. The Low Temperature Station for Research in Biochemistry and Biophysics, Cambridge, contributed diagrams, photographs, fungous cultures, etc., illustrating certain phases of the Station's work in connection with the storage of fruit.

Dr. G. H. Rodman had interesting observations concerning the leaf markings of species of Maranta and Calathea, and these were accompanied by living plants of Maranta insignis, M. Closonii, M. Massangeana, Calathea Veitchiana, C. Gouletii, C. Makoyana and C. Bachemiana.

A great many photographs from the Royal Botanic Garden, Edinburgh, showed several methods of vegetative propagation. These illustrated stem-cuttings of many Gymnosperms, Monocotyledons and Dicotyledons, root-cuttings of Pelargoniums, Acanthus, Prunus, Aralia, Rubus, Araucaria, with many other genera, and there were also illustrations of success with leaf-cuttings of different plants.

The Art Tent, set at right angles to the Orchid Tent, contained many paintings of garden scenes and floral studies from many well-known painters of these subjects, and there were also selections of garden plans.

Garden Sundries.

In addition to the usual array of garden sundries in the Avenue this year there were many along the far side of The Lawn. As usual, these exhibits were very comprehensive and included a great variety of chemical aids to successful cultivation, as well as all possible tools and appliances. That the present-day gardener appreciates the help he receives from the chemist as well as the inventor was fully evident from the great interest displayed by gardeners of all sexes, classes and grades in the exhibits so attractively set out and in the demonstrations performed with such dexterity by the various assistants.

The glasshouses and garden frames were very substantial, designed with great skill, and made of the best materials. Mr. David Swain had a most useful span-roofed greenhouse, complete in every respect, of beautiful "lines" and particularly well made. He also showed garden frames in several very good patterns. Messrs. J. Weeks and Co. also had well designed glasshouses with approved ventilating gear and of sound workmanship. Messrs. Duncan Tucker and Sons are well-known as builders of commercial glasshouses, and they exhibited very desirable structures adapted for use in the private garden as well. Greenhouses and frames also of considerable merit and quality, were contributed by Messrs. Boulton and Paul. Other exhibitors of glasshouses and frames were Messrs. G. Haywood and Co., Messrs. Messenger and Co., who also had the necessary hot-water boilers and a good selection of garden seats; Messrs. A. Overend and Sons, and Messrs. Skinner, Board and Co., who all displayed excellent structures.

Except under rare conditions, a hot-water boiler is a necessary adjunct to the glasshouse, and the various exhibits were placed conveniently near so that the visitor had no difficulty in making a selection. Messrs. C. P. Kinnell and Co. had boilers of all sizes, from the giants required by the large market grower to the small boiler for the amateur's greenhouse, and several were partly set in brickwork, making the exhibit of particular value.

The Thames Bank Iron Co. also showed a useful selection of greenhouse boilers.

Lawn-mowers of all sorts, from the smallest hand size, through pony and horse, to the most powerful motor-driven machine, and all of good quality, were to be seen in the Main Avenue. The chief exhibitors were Messrs. T. Green and Son, who also had garden rollers; Messrs. Thos. Gunn, Ltd., who, in addition to various mowers, had a wide selection of garden tools; The J.P. Super Lawn-Mowers, Ltd., showed their easy running types; Messrs. A. Shanks and Son, displayed their well-known patterns and rollers; Messrs. S. Condrup, Ltd., included sprayers and syringes in their exhibit; Messrs. Dennis Bros., Ltd.; the Godiva Engineering Co.; Messrs. Lloyds and Co., also had a practical machine for collecting fallen leaves on lawns; Messrs. C. H. Pugh Ltd.; Messrs. Ransomes, Sims and Jefferies, who showed a wide range of patterns; Messrs. John Shaw and Sons; the Tangent Tool Co.; and Messrs. E. J. Woodman and Sons, who also showed fertilizers.

Insecticides, fungicides and sprayers were frequently to be seen on the same stand, though some exhibitors confined themselves to the insecticides and fungicides. Messrs. Abol, Ltd., made a great show with their non-poisonous insecticide, White-fly Compound, patent syringes and special manures. The Acme Chemical Co. showed their powder weed-killer, Quassia-Tobacco insecticide and various manures. Messrs. Cooper, McDougall and Robertson had a wide range of their specialities, including tree-banding materials and lawn sand.

Messrs. G. H. Richards, Ltd., who recently have acquired the Stonehouse specialities and Kamforite pest destroyer from Messrs. Hensman Bros., showed these preparations with a great many of their well-known insecticides, fungicides, fertilisers, garden tools and tying materials. The Eclipse Spraying Co., the F. N. P. Manufacturing Co., the Four Oaks Spraying Machine Co., who had power as well as knapsack machines; Messrs. Houlder Harriden, Ltd., and Messrs. Martineau and Smith, who had good pattern sprayers also contributed to this section.

Messrs. Adco Ltd. had an attractive stand where they demonstrated the value of synthetic farmyard manure. Messrs. Joseph Fison and Co. had selections of manures for all crops. Messrs. Garden Supplies, Ltd., set out attractive cartons and tins of lawn sand, insecticides and manures. Tamorite occupied a prominent place amongst the specialities of Messrs. Prentice Bros. Messrs. Price's Patent Candle Co. had Gishurstine and Gishurst compound amongst their fertilisers and insecticides. Messrs. Robinson Bros. staged fertilisers with sprayers, watering cans and other appliances.

The large kiosk of Messrs. Corry and Co. contained a great variety of garden sundries. In addition to their Summer Cloud Shading they showed their Weed Death, Fowler's Mealy Bug destroyer, Niquas insecticide and Tar Oil winter wash; they had a novel wasp trap, and Woodlice and Ant Death, which is also said to bring mice, rats and rabbits from their holes. The Radium Fertilizer Co. had manures and lawn sand. The South Metropolitan Gas Co. showed sulphate of ammonia and a weed-killer. Messrs. Timothy and Sandworth set out powder sprayers, insecticides and other specialities. Messrs. Wakeley Bros. and Co. showed their well-known Hop manure and, in another place, had garden ornaments. Fruit tree protectors were shown by Walker's Protector Ltd.

Extensive displays of garden sundries of all kinds were made by Messrs. George Monro, Ltd., Messrs. Wm. Wood and Son, The Acme Ladder Co., and Messrs. Drew, Clark and Co., who held frequent demonstrations of their fixed and extension ladders. Cutting tools were shown by Messrs. Camp and Co., Messrs. James Carter and Co., who also had sprayers and many garden tools ; Mr. Job Hansen, who also showed cultivators ; Messrs. Holtzapffel and Co., Mr. C. A. Jardine, Messrs. Melhuish and Co., Messrs. A. Smellie and Co., who included well-made garden tools ; Mr. B. J. Walker, and the Wilkinson Sword Co.

Well-made greenhouses and frames were displayed by Mr. James Gray. The Chase Continuous Cloche Co. had their plant protectors. The Crown Optical Co. showed seed testers and various lenses. Garden furniture was set out by Messrs. Gamage and Co., Messrs. Abbot Bros., Messrs. Castle's Shipbreaking Co., the Disabled Soldiers' Institute and the Dryad Works.

The new patent shoulder hoe demonstrations attracted many visitors, who appeared to be impressed with the value of this tool. The Cooper-Stewart Engineering Co. had sprinklers and hose. Mr. J. Haws set out a wide range of his well-known patent watering cans and water carriers. Mr. A. B. Johnson had splendid turves and loam. Miss M. Nalder showed garden tools for children. The New Cross Timber Co. set out rustic work.

Horse boots for use on lawns, sprinklers and tools were displayed by Messrs. H. Pattisson and Co. Messrs. Piggott Bros. had garden tents and furniture. Mr. John Riches showed many patterns of his excellent metal labels. The Helichrysa Label Co. exhibited their new pattern labels. Mr. B. Pinney had a plant protector.

Large displays of garden ornaments in lead and stone were made by Messrs. Sanders and Co., by Messrs. Pulham and Son and by Messrs. Burton Holt, Ltd. Messrs. Allwood Bros. had sundries specially adapted for Carnation growers. The En-Tout-Cas Co. had a miniature tennis court and garden ornaments. Messrs. Fowler, Lee and Co. showed fruit bottling appliances. The House and Garden Sundries Co. demonstrated the handiness of their seed-sower and other appliances. Mr. J. Singleton showed his Nuesprays, and Messrs. T. J. Syer and Co. had garden furniture.

SOCIÉTÉ NATIONALE D'HORTICULTURE DE FRANCE.

Paris was at her best on the occasion of the Centenary Exhibition of the Société Nationale d'Horticulture de France. The hundreds of thousands of trees along the boulevards were in their fresh green dress, as yet unspoiled by dust and drought. Moreover, the gardens and plantations were charming and in many of these public oases summer bedding was already well advanced.

As in connection with so many previous exhibitions, the venue was the Cours la Reine, a long and rather narrow site next the River Seine, and quite near the Pont d'Invalides. The area is far too small for a great exhibition, as both outside and inside the large, temporary, canvas-covered structure, exhibits were crowded and space for the movement of visitors was severely limited. Outside the building and from the entrance, towards it, large displays of trees and shrubs, mainly evergreen, were made, and also a wonderful exhibit of trained fruit trees. Here, too, near the river on the one hand and the roadway on the other, garden statuary, tea and summer houses, and horticultural buildings, were distinctly reminiscent of the Lime Avenue at Chelsea. Horticultural sundries, such as tools, spraying apparatus, insecticides and fungicides, found a place along the narrow strip between the building and the roadway.

Garden designs filled several side rooms on the river side of the building, where also was the Orchid annexe, while at the far end of the building a fine collection of paintings of flowers and garden scenes was housed, with displays by various horticultural journals and a few scientific exhibits.

President Doumergue opened the exhibition on Wednesday, May 25, and was accompanied by various Government officials, including the Minister of Agriculture and municipal notabilities of the City of Paris. The attendance was good and especially so on the 26th—Ascension Day and a semi-holiday. Closing day was June 3, by which time we imagine most of the exhibits presented a very dusty and tired appearance, notwithstanding several renewals in the case of cut flowers.

So far as exhibits were concerned, Great Britain was but poorly represented, the only exhibits from this side of the Channel being one of Orchids from Messrs. Stuart Low and Co. ; one of paintings, from Miss Winifred Walker ; and the display of coloured plates, half-tone supplements and reproductions of portraits of notable French horticulturists from *The Gardeners' Chronicle*.

Judging commenced at 8.30 a.m. on the opening day. The jury was a distinctly international one, including many friends from Belgium, led by the Comte de Kerchove and others from Holland, with Mr. E. Krelage as their recognised leader.

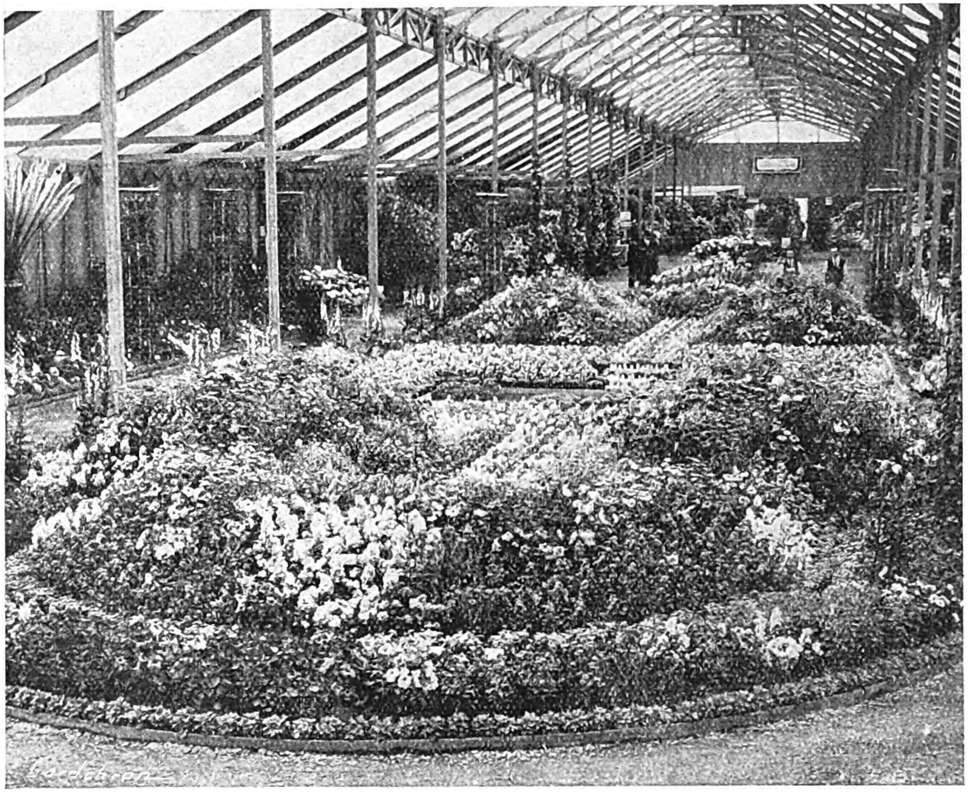


FIG. 194.—PARIS CENTENARY SHOW: VIEW SHOWING THE EXHIBIT OF MESSRS. VILMORIN-ANDRIEUX ET CIE.

Dr. Hill, Director of Kew ; Mr. E. A. Bunyard, Maidstone ; and Mr. F. Oldham, Windlesham, represented the Royal Horticultural Society, and formed a deputation that made several Awards which were greatly appreciated. Mr. C. H. Curtis appeared to be the only other British horticulturist present, and he acted as one of the judges of Orchids.

After the completion of judging, and following the opening ceremony, the judges and leading exhibitors were entertained by the National Society at a banquet given at the Society's headquarters in the Rue de Grenelle. The Minister of Agriculture presided, and was supported by M. Fernand David, President of the Society ; M. Nomblot, General Secretary ; the Comte de Kerchove, Madame Philippe de Vilmorin, M. Rabier (who presided at the International Conference in 1926), Mr. Krelage, Dr. A. C. Hill, M. Chatenay and others. There were probably about two-hundred-and-fifty present.

After the banquet M. Nomblot announced the principal awards made by the Superior Jury, and M. David extended a warm welcome to horticulturists of other nations who had come to pay their tribute of regard for the great work the S.N.H.F. had done during its hundred years of life. He also briefly reviewed the history of the Society over which he presides so ably.

The Comte de Kerchove made a most charming congratulatory speech, and Mr. Krelage, who responded for the foreign representatives, pointed out that while Holland and Belgium were strongly represented in personal and exhibits, the small attendance from Great Britain could be accounted for by the fact that Chelsea Show was opening on the same day and therefore keeping away many who would otherwise have been delighted to come.

In concluding the proceedings, the Minister of Agriculture announced that the French Government had honoured the Comte de Kerchove and Mr. Krelage with special decorations, while several Frenchmen had also been honoured, and one Englishman.

Considered as a whole, the exhibition was a fine one, and if the site had been half as big again the exhibits would have filled it easily, and visitors would have had better opportunities for closer examination of the plants and, incidentally, the opportunities for business would have been greatly increased. However, the Cours la Reine provide the only available site that is convenient for the purpose, and our French friends, with the co-operation of horticulturists from Holland and Belgium, made the most of their opportunities and secured an exhibition of which they cannot fail to be proud, to mark the Centenary of their great and useful Society. We extend our heartiest congratulations to all concerned, and venture to hope that in future two great shows held by two important national societies may be arranged for dates that do not clash.

The Vilmorin Display.

MM. Vilmorin-Andrieux et Cie were the largest of the exhibitors on this ausipicous occasion, and they occupied a central position in the exhibition (Fig. 194). As on so many other occasions, the general plan of the display was a hollow square, but in this case, with one side rising higher than the rest, with the middle portion so arranged with contrasting annuals as to appear like a flight of steps, with golden

Anthemis forming the balustrading. The whole of this wonderful exhibit consisted of annuals or plants that may be treated as annuals. Purple Stocks filled the centre, with a surround of grass; then came beds of Mallows, Petunias, Tropaeolums, Nemesias, and then, on the rising sides, great breadths of fragrant Stocks in a great variety of colours, Schizanthuses, Iceland Poppies, Marigolds, Petunias, Anthemis, Antirrhinums, Rhodanthe, Verbenas—very fine in form and colour; while on the outer edge, just within the grass verge, there ran all round the display a solid, golden band of Gamolepis Tagetes.

On the higher side a terrace and colonnade were arranged, planted with Anthemis and Mallows in variety.

Running parallel with this great effort, the firm of Vilmorin showed, on the one side of the hall, Irises and Sweet Peas. The former were very handsome, and new sorts were Fra Angelico, light bronze standards and pale mauve and bronzy falls; Leonardo da Vinci, bronzy-fawn standards and smoky-crimson purple falls; Paul Veronese, pink standards and purple-blue, white-striped falls; Pericault, dark purplish-crimson falls and bronze, blue-shaded standards; Bellatrix, golden bronze standards and crimson, yellow-veined falls; Mignard, mauve; and Ingres, rich golden bronze, with golden bases to the crimson, white-striped falls. Sweet Peas were good and prettily arranged, but we see better at home.

On the opposite side, the space was devoted to groupings of Antirrhinums of many colours, double Poppies, single Poppies, annual Chrysanthemums, climbing Tropaeolums, a fine strain of Foxgloves, Canterbury Bells and Cinerarias of the stellata type. Nor must we omit the little rock garden at the back of the aforesaid terrace, wherein we noted very deep-hued forms of Primula japonica, Aster alpinus, Sempervivum nigrum, a cream-coloured Alyssum, Campanula Portenschlagiana, Linarias, Helianthemum Golden Queen and Dianthus Paucicii.

Not content with this huge exhibit, M.M. Vilmorin filled a greenhouse with large and small-flowered strains of herbaceous Calceolarias, Primula obconica in a great variety of colour shades, from pure white to crimson, and an extensive array of models of vegetables. Further, M.M. Vilmorin exhibited a large collection of garden tools and in addition made a display of vegetables and salads that must have been at least fifty yards long and about eight feet wide. This wonderful assemblage of seasonable vegetables and salads included many varieties rarely seen in England, notably the white and yellow Cucumbers, and the long-rooted white and white and purple Turnips. Lettuces and Endives were presented in large variety and size, as also were Cauliflowers. Peas, as growing and cropping, as well as Tomatos, formed an interesting background to this vast display, which was arranged very little above ground level just outside the main building.

Madame Philippe de Vilmorin was justly proud of the Homeric and successful efforts of her staff in Paris and Verrieres, and made no effort to dissemble her gratification when told that M.M. Vilmorin had been awarded the principal prize, offered by the President of the Republic.

Exhibits Under Cover.

A big exhibit by M. L. Ferard, designed to show the lower slopes of a mountain—with snow on the scenic background—was quaint in conception but hardly to scale. Pines topped the grassy slopes, and little groups of Campanula and Helichrysums occupied niches on the precipitous side. Where the ground sloped less sharply a great drift of Foxgloves ascended to the "timber line," while lower down and at the foot were groups of Potentillas, Asters, Campanulas Arums (the golden ones were quite out of place), Veronica Hectori, V. salicornoides, hardy Ferns, Primulas and Lilium regale.

M.M. Defresne et Fils, Vitry, contributed a fine collection of Roses in all sizes from dwarfs to climbers and big weeping standards; this firm provided a capital Rose garden, and their weeping standards of Excelsa, Dorothy Perkins and Lady Godiva were greatly admired. We saw nothing especially attractive in the new varieties submitted.

M.M. Moser et Fils, Versailles, displayed a large Rose garden at one end of the building, and their effort must have cost much labour and expense. On a sunken lawn a central Lily pool was margined with French Marigolds; around this, on grass terraces, the large beds of Polyantha Roses thoroughly deserved the admiration they received. At the back was a colonnade, festooned with climbing Roses and having a central arbour of Roses sheltering a piece of statuary—a pensive lady. All around this garden, and outside its paths, were other arbours and trellises covered with Roses. The Polyantha varieties in the beds referred to were Kosters Orleans, Jessie, Orleans Rouge (very rich in colour), Triomphe Orleanais (deep red), Mrs. W. C. Konig (white), Lady Reading (rose red), Verdun (very bright), and Madame Jules Gauchicault, pink. Jules Potin, a new Pernetiana variety, has large, light yellow flowers of good shape and borne on long stems; this was shown by M.M. Moser.

A brilliant exhibit by M.M. Cayeux et Le Clerc, Paris, was composed largely of bearded Irises, which were presented in great sheaves of each variety—Soliman, Duke of Bedford, Jacqueline Guillot, and Bruno were particularly fine. Paeonies, Asters, Nemesias, Crepis and Schizanthuses formed a large bed within the flanking masses of Irises.

Hydrangea specialists found much to admire in the circular group of these plants arranged by M. H. Cayeux, Ville de Havre Gardens. Most of the varieties were new, and many of the seedlings were as yet unnamed. Two new sorts that made a special appeal to us were Champion, a very beautiful variety of deep cerise-pink colour and tiny white eye; and Normandie, rich reddish rose, with very large "pips," paler at the centre; this had great heads of bloom. Sensation, a lovely deep blush-pink, with creamy eye, and Ginette, white, were also good.

As became one of the first firms to raise new garden Hydrangeas, M.M. E. Moullière et Fils showed a large group of finely grown Hydrangeas (Fig. 195) in which the new variety Marie Pierre Filipo, very deep reddish rose, was very distinct and effective. Other fine sorts included the older Madame Moulliére, the pink and white Prof. D. Bois, the dark rose America, and the blue form of America.

M. Georges Truffaut, Versailles, displayed the deepest blue-coloured Hydrangeas in the show, and grouped these under Palms in the back of a large exhibit that was a veritable valley of Roses—all Polyantha varieties. In the foreground were other Hydrangeas, notably a fine pink variety named Triomphe. In another part of the exhibition, M. G. Truffaut demonstrated his numerous biological studies and work in plant-breeding.

M. F. A. Truffaut, Versailles, had a capital exhibit of Hydrangeas, some of exceptional deep blue colour, but the collection of Kurume Azaleas was the most interesting part, and the white variety named Isuta Mongii was one of the best of many beautiful sorts.

M.M. Croux et Fils, Chatenay, were amongst the most extensive exhibitors of Rhododendrons, and although their large and splendidly flowered plants were massed rather closely, they nevertheless made a fine display, and one that arrested attention by reason of its brilliance; two of the groups were each about twenty-five yards long, and some twenty feet deep. Varieties of outstanding importance included the old Everestianum, Lady Cathcart, Robert Croux, deep crimson; The Strategist, deep pink; Louis d' Andigne, brilliant rose and orange; Madame Marie Van Houtte, white; Michael Waterer, red; and Princess Mary of Cambridge.

Between these two big beds or borders of named sorts the same firm filled a large bed with some of their own seedling varieties, and of these a few notable sorts were Madame Jules Fontaine, violet-rose, white and orange; C. Nicolas Potocki, scarlet and pink; Pres. Felix Faure, red, shaded deep pink; and Maurice Croux, white, widely margined with soft rose-pink, and with light orange-yellow spots on the lower lobe.

Just within the chief entrance, M.M. Aug. Nonin et Fils, Chatillon, provided an effective display of Roses in beds, on pillars and pergolas, dwarfs, standards, weeping standards and climbers. Excelsa, Dorothy Perkins and American Pillar and Paul's Scarlet Climber are popular sorts in France, judging by the frequency with which they were shown. Among the dwarfs, Joseph Gay, red; Souv. de Claudius Pernet, rich yellow; Mrs. W. C. Miller, pink; and Elvira Aremayo, light scarlet, were prominent varieties.

A particularly bright spot was composed of a circular bed of an excellent strain of Calceolarias with spotted flowers, and a semi-circular exhibit of Begonias. The former were displayed by M. Valtier, Paris, and the Begonias, all named, by M. A. Billard, Le Vesnet; an interesting variety and represented largely was named Paul Parré, a creamy-pink, double, fringed variety of apparently very dwarf habit.

The best of the Paeonies shown by M.M. Doriat et Fils, La Pelisse, were Verdun, a vivid crimson, single; La Fiancee, white, single; Elisa, clear pink, semi-double; and Princess Mathilde, single, broad petalled, a lovely shade of rose-pink, with a central boss of golden stamens and anthers. Pelargonium Aurore, a zonal variety of bedding type, was an attractive new sort exhibited by M. F. Olivet, Paris; it is of light and bright yellowish-orange colour with a fairly large white eye.

Other exhibitors were M. Ant. Posmourny, Colombes, who displayed a Japanese garden; M. Thuilleaux, Roses; M.M. Vallerand Frères, Osnieres, Gloxinias and Begonias; M. Chas. Weiss, St. Cloud, dwarf Japanese trees; M. G. Thiebault, Paris, a collection of Cacti, arranged as though growing naturally, with a Mexican scene for a background; M. Henri Barri, Paris, Japanese dwarfed trees and miniature Japanese gardens.

The Parisian florists made charming contributions of floral designs, M. Lauchaume, M. Charlot and M. Andre Baumann each filling a large space, but the outstanding attraction of this section was the display by M. Edouard Debrie, whose old lady—with young features—in a hooped skirt, embroidered with Pyrethrums, was the central feature of designs contrasting floral art of 1827 with that of 1927.

Around a large batch of standard Roses, placed too closely together for our taste, MM. Leveque et Fils, Ivry-sur-Seine, exhibited dwarf Roses in great variety; Reims, soft creamy yellow; Souv. de Georges Pernet, the old Dean Hole, in capital form, and Mrs. George Beckwith, were the varieties that attracted our attention.

Educational Exhibits.

An extensive and interesting collection of economic plants was arranged in a span-roofed greenhouse by M. Bois, of the Natural History Museum and Jardin des Plantes. Limits of space prevent a detailed account of the wide range of subjects exhibited, and be it stated, the plants were in better case than it is usual to see them. Just a few we noted in a brief inspection during a crowded period were Sansevieras, Agaves, Phormium and Boehmeria nivea, among fibre plants; the Avocada Pear, Cherimolier, Loquat, Banana, Guava, Monstera and Litchi, among fruits; and Citron Grass, Tea, Coffee, Cocoa, Coca, Kola, Pepper, Pimento and Clove, among plants used for perfumery, drugs and drinks. Every plant was duly labelled showing its use, country of origin and botanical name.

Very many years have elapsed since we saw so many and such fine examples of Platyceriums—Elk's Horn Ferns—as those sent from the princely gardens of Monte Carlo. Three specimens of Platycerium grande were outstandingly fine; besides there were big specimens, over four feet wide, of the old P. alcicorne, and examples only a little smaller of P. Willinckii, P. Hillii and P. Hillii majus. A background for these grand specimens was provided by big examples of Pandanus Veitchii and P. Sanderiana, while many large plants of Asplenium Nidus Avis—the Bird's Nest Fern—together with Anthuriums and masses of brilliant Bougainvillea completed this very fine contribution.

From the School of Horticulture at Versailles came a mixed exhibit, consisting of Caladiums, Philodendrons, Dracaenas, Schizanthuses, Begonias and fruit trees in pots, the examples of Plums and Cherries carrying excellent crops.

Outdoor Exhibits.

Shapely specimens of Box, Yew, Privet and Holly were associated with good examples of Picea Kosteriana, Cedrus atlantica glauca, Magnolia floribunda, Osmanthus ilicifolius, Ilex crenata and Phillyrea angustifolia by M. Thielleau, St. Cloud, in a formal arrangement of beds.

Japanese Maples and other trees and shrubs made a pleasing setting for four large beds of the Polyantha Rose Edith Cavell, exhibited by M. G. Martin Leconte, Louvenciennes.

Very wonderful examples of trained fruit trees were displayed by M.M. Nomblot-Bruneau, Bourg-la-Reine. These, with more freely grown trees, made up a quite extensive fruit garden. The large, fan-trained Pears, attached to trellises, every branch spurred like a single cordon, drew expressions of wonderment from the many British and American visitors who had not previously seen anything of the kind. Some of these specimens of patient cultural skill carried good crops of young fruits, notably the trees of Doyenné du Comice and Bergamotte Esperen. No less wonderful were the large, goblet-shaped trees of Pears, Plums and Apples, each on a clear stem—like a gigantic wine-glass. The cylindrical, pillar-shaped trees were equally attractive, and well-cropped standards of Red and White Currants and Gooseberries attracted the attention of the young folk. In passing we may add that we cannot remember ever to have seen so many children, young lads and maidens, attending the two first days of a flower show, as on this occasion.

A handsome group of evergreen trees and shrubs was finely arranged by M. Paul Lecolier, St. Cloud, with a low rock garden in the foreground; Cedrus Deodara argentea and Juniperus Sabina were capital specimens, the latter over six feet high and above ten feet through.

Japanese Maples were well and largely shown by MM. Croux et Fils, Chatenay, who displayed many examples of the dark, red-leaved form (atropurpureum) and a big example of Acer palmatum crispum, around a very big specimen of Rhododendron Princess Helene. Cupressus Lawsoniana minima glauca, a dense little bush about eighteen inches high, also attracted lovers of Conifers.

Orchids.

The Orchid section at the Paris show was a small affair as compared with the display of these flowers at Chelsea. Most of the groups were located in an annexe to the exhibition building.

M. Blevenec, Colombes, contributed a series of Laelio-Cattleyas, but showing little variety of colouring. M.M. C. Maron et Fils, Brunoy, showed a capital group in which three plants of Phalaenopsis Rimestadiana, each carrying one long spike with nineteen, twenty-one and twenty-three flowers respectively. Miltonias were also shown well by this firm, and the group included Laelio-Cattleya Canhamiana, Oncidium varicosum Rogersii, Cattleya Mossiae and C. M. Wagneri.

M. Guttin, Argenteuil, contributed a showy set of Cattleyas, Brasso-Cattleyas, Odontoglossums and Odontiodas, and was awarded an Objet d'Art for it. M. Morcoz displayed his Cattleyas and Odontoglossums pleasingly among suitable foliage plants and tree branches, thus giving the group a natural appearance. Laelio-Cattleya Canhamiana alba and Cattleya Mossiae were very good in this group.

M. Leon Perrin, Clamant, staged a very fine lot of Vanda suavis, all the plants carrying several spikes of flowers; Miltonias, Renanthera Imschootiana and Brasso-Cattleyas were grouped around the Vandas. M. Vacherot-Lecoufle, Boissy St. Leger, contributed one of the most attractive groups.

Although his plants were small they were well flowered and consisted of Odontioda Charlesworthii, Renanthera Imschootiana, Thunia Bensoniae, Cypripedium Curtisii, and Odontoglossums in variety, and two beautiful examples of Miltonia Memoria G. D. Owen, one carrying six and the other four spikes of handsome flowers.

In the Belgian section, M.M. Verdonck, Gendbrugge, arranged a very pretty group in front of mirrors. He had Odontoglossum grande, Laelio-Cattleya G. F. Ball, Miltonias in variety, and a selection of hybrid Odontoglossums. M. Jannsen also showed a few Orchids, while M. Binot, the collector, showed specimens of several species of Oncidium as imported from Brazil.

The only British exhibitors, Messrs. Stuart Low and Co., were hampered by lack of space, and they were unable to make the best of their plants. None the less, they had an attractive group in which the bright Sophro-Laelio grangefieldiense showed up among Cattleya Dowiana, Cypripedium Rothschildianum, C. niveum, C. callosum Sanderae, Laelio-Cattleya Goldflake, L.-C. G. D. Ball, and various showy Odontoglossums and Odontiodas. Messrs. Stuart Low and Co. were awarded the Objet d'Art offered by Madame Potin.

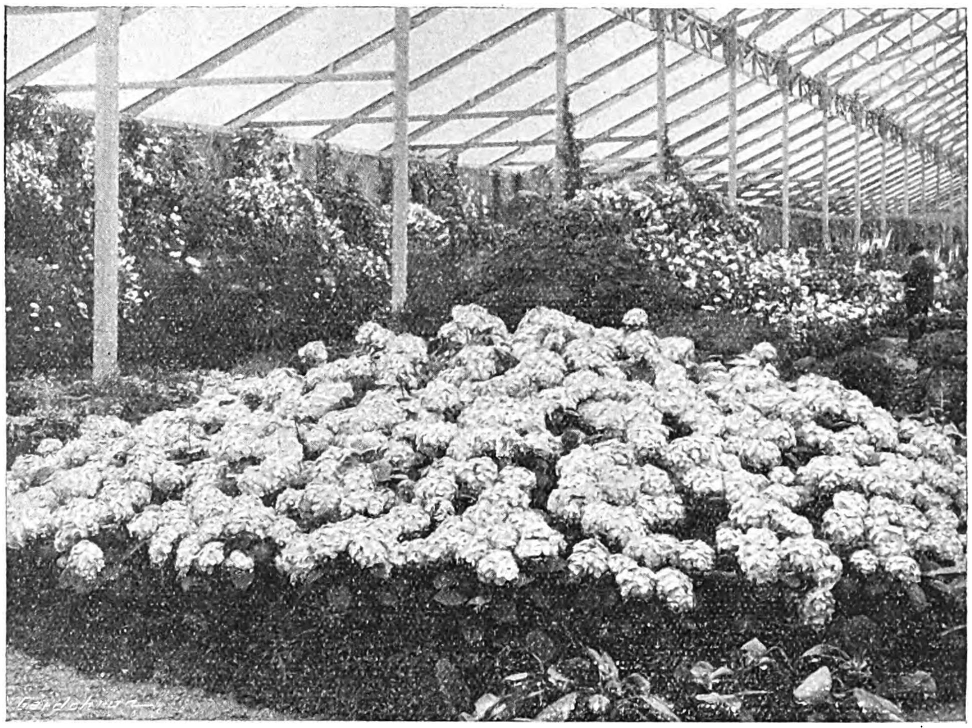


FIG. 195.—PARIS CENTENARY SHOW: VIEW SHOWING MESSRS. MOULLIÉRE'S HYDRANGEAS IN THE FOREGROUND.

(see p. 402).

Dutch Section.

The Dutch section was a large one, and a wonderful effort of organisation. It consisted principally of Lilac, Roses, Hydrangeas, Cyclamens, Calceolarias and Begonias, but this bare statement conveys no idea of the beauty, colour and fragrance provided by the splendid display.

The great, central feature consisted of about thirty big vases of white and coloured Lilac, chiefly white, and how the Aalsmeer growers had contrived to retard the plants so severely and yet produce such beautiful spikes is known only to the clever growers themselves, who are to be congratulated on winning the beautiful trophy which we figure on p. 391. Around the masses of fragrant Lilac, bowls and baskets of Roses were arranged, the leading sorts being Souv. de Claudius Pernet, J. C. Mensing, Madame Butterfly, Wilhelm Kordes, of lovely colour; Ophelia, Columbia and Hadley, crimson, in great numbers. In this same great, central portion of the formally designed Dutch garden, there were opposite, semi-circular groups of Begonia Gloire de Lorraine and Cyclamens, both shown by M. Baardse, of Aalsmeer. Both were very fine but the Cyclamens were particularly good.

Towards one end of the section, M. Baardse arranged a magnificently grown lot of Hydrangeas, every one carrying a single head of splendid size; Mignon, a dwarf blue; Konigen Emma, rose pink; Mevrouw Baardse, light pink and compact; La France, a deep blue; Deutchland, deep rose-pink, with extra large pips; Konigen Wilhelmina, pink; and Bagatelle, blue, shaded with white, were the leading varieties.

To the Dutch growers for their splendid collective contribution a special award was made, while individual growers obtained recognition of their efforts in the form of medals and works of art.

Alongside the large space occupied by the main exhibit from Holland, there was an equally interesting display, part of which was devoted to floral art—including a gigantic vase of Lilium longiflorum and Eremurus; a huge basket of mauve Sweet Peas and pink Roses; red Roses combined with Mignonette and Glory of Moordrecht Fern (a descendant of A. Farleyense), and a free use of Anthuriums; big groups of the dull orange Azalea Princess Juliana, a large-flowered Mollis variety; large standards of the brilliant Doncaster Rhododendron; a large bed of the bright Polyantha Rose Golden Salmon (figured in our issue of May 28); groupings of Glory of Moordrecht, Johan Bier, lovely Ferns of the Adiantum Farleyense type; and a great display of Spanish Irises contributed by the Bulb Growers of Holland. Altogether the Dutch growers had every reason to congratulate themselves, and they could not help but know that their efforts met with general admiration and appreciation.

Belgian Section.

Although the Belgian growers failed to make such an arresting collective display as their Dutch contemporaries, they, nevertheless, acquitted themselves right well. A large bed of brilliant Azaleas and Rhododendrons occupied the central position; the plants were shown by M. T. Piens, Melle, Ghent, and included the brilliant scarlet Azalea Apollo, smothered with flowers; other good varieties were the light pink Haerensiana and the deep pink Madame Jean Haerens.

All around were fine groups of large Palms and Bromeliads, Cycads, Philodendrons and Araucarias submitted by M. Dalliere, Ledeberg; M. de Coster Ande; M.M. Bier and Ankersmit, Melle; The Flandria Co., Bruges; and M. J. P. Hartman, of Mont. St. Amand. Brilliant Anthuriums, chiefly of the Scherzerianum section, were shown in quantity by M. Vande Putte, Meirelbeke and, as usual, attracted a great deal of attention. M. Désiré Draps, Brussels, contributed finely-grown Hydrangeas, and among these we noticed La Cygne, white; Pier Gynt, rose and white; Loreley, deep pink, fringed; Elmar, deep, reddish rose; and Madame Désiré Draps, a pretty light rose-pink sort. M. Emile Draps, Merxem, Antwerp, showed many large vases of beautiful Carnations rising above a collection of Bromeliaceous species, one of which, Aechmea Reukartianum, carried a tall spike of scarlet flowers. M. J. L. Draps, Dom, also sent Hydrangeas.

Grapes, Peaches and Nectarines, all well-grown, were exhibited in glass cases by the Syndicat des Viticulteurs Belges; the fruits were grown mostly in the quaint old town of Hoeylaart, and the surrounding district.

Royal Horticultural Society's Awards.

Special Work of Art (see Fig. 187).—To the Horticultural Union of Aalsmeer, for the contribution of Lilac and Roses to the Holland section.

Gold Medals.—To MM. Vilmorin Andrieux et Cie., for their vast and varied display; to MM. Croux et Fils, Chatenay, for Rhododendrons; to M. Defresne, Vitry, for Roses; to the Exposition Hollandaise; and to the Exposition Belge.

Silver Flora Medals.—To MM. C. Maron et Fils, Brunoy, for Orchids; to MM. Vacherot-Lecoufle, for Orchids; to M. Chantrier, for Caladiums, etc.; to the Ville du Havre (M. Cayeux, Supt.), for new Hydrangeas; and to the Public Garden of Monte Carlo, for Platyceriums, Pandanuses, etc.

Silver Banksian Medal.—To M. Thiebault, for Cacti.

VALE OF EVESHAM ASPARAGUS GROWERS'.

The third annual show, held in Evesham, on Wednesday, May 25, in connection with the Vale of Evesham Asparagus Growers' Association, and in aid of the Evesham Hospital, was the most successful during post war years. The entries numbered 133, which is much more than double those of last year, and represented a total of about 170 bundles of Asparagus.

Never before, since its introduction to the district in 1850, has Asparagus commanded so much attention as at this show, and the prize-winning bundles were most meritorious.

The Silver Trophy offered for the best bundle in the show was won by Mr. L. J. Jelfs, of Bretforton, and at the subsequent auction realised £6 2s. 6d. Mr. H. Osborne, of Badsey, won the Silver Cup offered for the best flat of four bundles, which was sold for £8 10s. 0d., and Mr. J. Cooke, of Littleton, won the Silver Cup offered for the heaviest bundle of 120 heads of Asparagus. Mr. Cooke's exhibit weighed 17½lb., and was sold for £5 15s. 0d. The amount raised at the sale, by exhibits alone, was £156, and the total proceeds of the show, which include the sales of produce from various stalls arranged by villagers, was about £230.

The President (Mr. C. A. Binyon, J.P.) presided at the luncheon, supported by the Mayor of Evesham (Councillor J. Edwards), Sir Julius Sladden and Mr. A. Woodall (Vice-Presidents), and Mr. A. S. Boaler (Hon. Secretary). The Mayor welcomed the show to Evesham again after many years' absence, and Mr. E. W. Beck thanked the Association for donating the profits to the Hospital fund.

Reports regarding the progress being made by the three Research Stations into the nutrition and disease side of the crop were given by Mr. R. C. Gaut (Agricultural Organiser for the County of Worcester); Mr. R. M. Nattrass (Long Ashton, Bristol University, Research Station), and the President, who spoke on behalf of Mr. A. Appleyard, of Campden Research Station. Regarding the new seed introduced from America by Mr. Appleyard, the President said that it was showing fair promise, and roots had been distributed to various growers. Mr. Nattrass, who is conducting experiments of Asparagus beds with infected and with virgin soils at Long Ashton, said that soil sickness seemed to be the reason for the industry drifting away from Evesham. Mr. Gaut suggested that as the pruning knife was said to convey disease among Black Currants, so the cutting knife might convey the fungous disease among Asparagus.

Mr. Barnett Emanuel, of Covent Garden, London, urged growers to send Asparagus to market in smaller bundles during rush periods, when the French, Californian and Argentine produce was on the market.

The following are some of the chief prize-winners, in addition to those mentioned above:—Class A, for members only: Mr. H. Witts, Littleton; Class B.—Flat of four bundles: Mr. W. H. Jelfs, Badsey; Class C: Mr. W. C. Hall, Badsey; Class D: Mr. H. Belcher, Childswickham; Class E: Mr. James Knight, Blackminster; Class G.: Best machine-tied bundle: Mr. J. Cooke, Littleton; Class H.—Commercial Asparagus: Mr. H. Print, Childswickham.

GUILDFORD AND DISTRICT GARDENERS'.

Two very enjoyable outings were arranged by this Association in May; the first outing was on May 11, when, by kind permission of Theodore Pim, Esq., the members visited Snowdenham Hall, Bramley, Surrey. The gardens at Snowdenham are very beautiful, and the visit was greatly enjoyed by the party. The return journey was made by Cranleigh Holmbury and Newlands Corner. On Saturday, May 21, members visited New Place, Haslemere, by kind permission of Lady Methuen; the visitors were conducted through the gardens by the gardener, Mr. Grant. Standing near the house, the view across the lawn, away over a forest of all shades of green on to the bare Sussex downs is entrancing. Every Sunday afternoon in May and June the gardens are open to the public, when visitors to the number of 150 or 200 enjoy the privilege. Lady Methuen provided refreshments for her guests. Before leaving, Lady Methuen presented to Mr. Patrick a little booklet, profusely illustrated, descriptive of her garden, and a second copy for the use of the members.

Obituary.

J. Barnard.—We learn with deep regret of the death of Mr. James Barnard, for many years gardener at Mostyn Hall, Flintshire. Mr. Barnard, who was seventy-three years of age, retired from Mostyn Gardens some time ago and resided with his son and daughter-in-law, Mr. and Mrs. R. Barnard, at Ffynnongroew. He was Secretary of the Whitford and Mostyn Garden Society for sixteen years, and associated himself with the social activities of Mostyn in other directions. He leaves a widow, two sons and one daughter.

H. T. Huggins.—The numerous friends of Mr. H. T. Huggins will be sorry to hear of his death, at Chelmsford, on May 25, in his eighty-third year. He was manager of Messrs. Cooper, Taber and Co., Limited, wholesale seedsmen, of Southwark Street, since the inception of the firm in 1887, and previous to that he was partner in Messrs. Waite, Burnell Huggins and Co., at 79, Southwark Street. Mr. Huggins was held in the highest respect by members of the seed trade, and his long experience of the trade was always at the disposal of his friends.

David King.—Many Scottish horticulturists, as well as a number south of the Border, will regret to learn that Mr. David King, Osborne Nursery, Edinburgh, passed away on the May 27, after a short illness. Mr. King completely lost the sight of both eyes four years ago, but he retained his good health up to a few weeks before his death, although it must have sapped his robust constitution to some extent. Mr. King, who was seventy-five years of age, was predeceased by Mrs. King many years ago, and he is survived by his two daughters, who, during the past four years, have been of great assistance to him in the conduct of his business. Mr. King, of whom a portrait appeared on page 89 of vol. LIII of *The Gardeners' Chronicle*, was born at Bo'ness, and commenced his gardening career at Midfield Gardens, near Polmont, and afterwards served in those of Kinfauns Castle, Gartmore, and Brechin Castle. In 1874, when but twenty-one years old, he started business at Murrayfield, where he built up a large trade in the growing of plants, more especially Ferns, for market, and about forty years ago he introduced to the Edinburgh Flower and Fruit Market forced Tulips and Hyacinths in bowls for Christmas decoration. Mr. King took a great interest in horticultural affairs in Edinburgh. He served for a considerable number of years on the Council of the Scottish Horticultural Association, of which he was President in 1913 and 1914, and also that of the Royal Caledonian Horticultural Society; and when the Scottish Association was incorporated in the latter Society in 1921, he was elected President of the Royal Caledonian Society, which post he occupied for two years. He was also for a few years a Governor of the East of Scotland College of Agriculture, and for a considerable number of years he was President of the Edinburgh Market Gardeners' Association, which office he held up to the time of his death. In 1924 he was awarded the Neill Prize, as a cultivator, by the Council of the Royal Caledonian Horticultural Society.

ANSWERS TO CORRESPONDENTS.

Names of Plants.—*Thames*. 1, Acer platanoides var. Schwedleri; 2, A. macrophyllum; 3, A. Pseudo-platanus var. aucubaefolium; 4, A. dasycarpum; 5, Pyrus lobata; 6, Spiraea prunifolia var. flore pleno; 7, Berberis vulgaris var.; 8, Lycium barbarum. *A. C.* Ceanothus dentatus. *H. N. G.* Cydonia japonica. *W. F. H.* Prunus Padus, the Bird Cherry. *F. J. W.* 1, Pulmonaria longifolia; 3, Trollius europaeus; the other labels were detached; white flowers, Asperula odorata; woolly foliage plant, Stachys lanata. *H. C.* Tritonia crocata.

Sulphate of Copper and Green Algae.—*H. P. K.* The regulation amount of sulphate of copper is 1 lb. to 100,000 gallons of water, and this quantity does not harm Water Lilies, and presumably it would not harm Watercress. To find the quantity of water in any given bed, multiply the length by the breadth, and that by the average depth of the water. Each cubic foot contains six-and-a-quarter gallons, so the above sum should be multiplied by six-and-a-quarter to find the number of gallons in a bed. Presumably a bed would not contain 100,000 gallons, so that four ounces of sulphate of copper would be sufficient for 25,000 gallons; two ounces for 12,500 gallons; one ounce for 6,250 gallons; and half-an-ounce for 3,125 gallons. The crystals can be put in a bag and trailed through the water at short intervals until they are all dissolved and pass into the water. This may require to be done once or twice a season. If the Algae are in large, dense trails, as Vaucheria often is, it would be policy to rake out the larger colonies. The copper sulphate being poisonous, it might be advisable to flush the beds with a greater flow of water some time before Watercress is gathered for use. If newly cut, before applying the sulphate of copper, this would not be necessary.

Communications Received—L. L.—Flowering Trees.—P. E. C.—J. T. B.—W. K.—C. E. P.—J. H.—W. A.—F. T. B.—J. M.—C. C. R.—M. E.—E. V.—T. P.—M. and M.—W. C.—J. S. T.—B. B.—G.B.—G. S.—X. L.—E. S. C.—E. C. V. G.—Iris.

THE Gardeners' Chronicle

No. 2111.—*SATURDAY, JUNE* 11, 1927.

CONTENTS.

Alpine garden—
  Dianthus squarrosus 410
  Geranium argenteum 410
  Phlox subulata × P. amoena 410
  Ranunculus gramineus 410
Argentine, new species from the Andes of ... 407
Bolting in plants ... 417
Books, notices of—
  The Field-Club Flora of the Lothians... 416
Buying patented articles 416
Cannizaro, some interesting shrubs at ... 411
Celery seed, the germination of... ... 417
Chrysanthemums, eelworm disease of ... 415
Dutch fruits and vegetables 406
Economic plants of the Bay Islands ... 413
Florists' flowers—
  Auriculas at Nether Warden 410
Fruit competitions for amateurs 406
Fruit plantations, tour of mid-Kent ... 405
"Gardeners' Chronicle" seventy-five years ago 407
Gardeners' Club ... 405
Gladiolus, the 415–417
Gladioli, Kelway Challenge Trophy for ... 405
Obituary—
  Butterworth, J. T.... 421
  Ivey, David ... 421
  Manning, Thomas... 421
Honours for British horticulturists ... 405
King's birthday gift... 405
Lilium regale seedlings 417
Lobjoit, Sir William George, O.B.E. ... 406
Orchid notes and gleanings—
  Cypripedium Acomb 414
  Orchis foliosa ... 414
Public open spaces, fruit-growing in ... 407
Ranunculus Lyallii in New Zealand ... 410
Rhododendrons, the worth of hybrid ... 411
Rose garden—
  Some old-time Roses 410
Societies—
  Iris 418
  Royal Horticultural 419
  Royal Scottish Arboricultural ... 420
  Wakefield and North of England Tulip 418
Strawberries, the cultivation of 405
Strawberry plants, deterioration of ... 417
Sugar estate, a day on a 412
Tropaeolum tuberosum 417
Vegetable garden—
  Forcing Seakale ... 416
Violas, a revision of ... 414
Week's work, the ... 408

ILLUSTRATIONS.

Chrysanthemum plants affected with eelworm disease 415
Iris Akbar... 407
Kelway Cup and Medal for Gladioli 417
Lobjoit, Sir William, portrait of... 406
Rhododendron Loderi var. King George 411
Sugar plantation, scenes on a 412–413
Weinmannia trichosperma 409

SUPPLEMENTARY ILLUSTRATION.
Ranunculus Lyallii in New Zealand.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 58.9°.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 8, 10 a.m. Bar. 30.1. Temp. 53°. Weather, Dull.

On the Cultivation of Strawberries.

It goes without saying that good cultivation of any plant must depend on an understanding of the habit of growth of that plant. For without that understanding the timing of all those operations which constitute good cultivation is likely to be at fault; and bad timing is as fatal to successful results in gardening as it is in golf. It was, no doubt, the recognition of this elementary truth that led Messrs. Mann and Bell* to undertake observations at the Long Ashton Horticultural Research Station on the growth behaviour of the Strawberry. According to these observations—which, however, are not yet complete in all respects—transplanting of well-rooted runners is followed by a certain amount of root injury which, however, is rapidly made good during the weeks of autumn following on transplantation. Active root growth continues until about mid-December, after which a dormant period follows which lasts until the beginning of March. In this period of spring growth it is the shoot rather than the root which grows vigorously. Root growth in spring is, on the contrary, by no means vigorous—few new primary roots are formed at that season. Then, after cropping, the Strawberry shows a third phase of growth in which both root and shoot take equal and large part. During this phase, which lasts till mid-September, new crowns are formed, and the bulk of the plant is greatly increased. The growth of the root begins during this phase at the end of June, and is at first slow, but becomes very rapid at the beginning of August. This root growth includes the production of both new primary roots and of new lateral growth on the old roots. It is particularly noteworthy that the new primary roots have their origin chiefly at the bases of the new crowns and *above* the point of origin of the older roots. As might be expected, removal of blossom increases the vigour of this summer growth. When spring-planting is practised instead of autumn-planting, the Strawberry gives its attention primarily to the production of lateral feeding roots, but later, in July, new primary roots are also formed and growth of shoot as well as root goes on during August and September, with the result that spring-planted Strawberries have by that time largely caught up with those planted in the previous autumn. Several practical conclusions follow from these observations. If root growth, which forms the basis of next year's plants, begins about a month after the crop has been taken, the ground under Strawberries should be cleared and cultivated in that interval. Furthermore, inasmuch as the new roots which are formed during summer arise above the level of the old ones, it must be good practice—as many gardeners know—to draw up enough soil about the crowns to encourage and protect the young roots which are about to push out. A third conclusion would seem to be no less sound, and that is that a fertiliser likely to encourage root development as well as shoot development should be applied before the "earthing up" of the crowns is done. A suitable fertiliser would be one containing both phosphates for root growth and nitrogen for shoot growth—say superphosphate and sulphate of ammonia. This last question, however, is one which the authors propose to investigate in the near future. It would be interesting if they were to try the effects of ammonium phosphate—a fertiliser which, although it may be for the moment difficult to come by, is likely to prove of very great value in garden practice. One other point is, perhaps, worth making. Plants, no less than human beings, like seasonal rests, and therefore it would probably be best to delay the actual clearing and cultivation of the Strawberry plot for two or three weeks after cropping so as not to rob the Strawberry of its—as it may be hoped—well-earned month's summer holiday from the work of growing.

Honours for British Horticulturists.—The King's list of Birthday Honours contains the names of some prominent horticulturists. Both Mr. William Lobjoit, O.B.E., late Controller of Horticulture, and Alderman James Benjamin Slade, J.P., of Messrs. Protheroe and Morris, have been made Knights; the Rt. Hon. Lord Lambourne, C.V.O., President of the Royal Horticultural Society, has been made G.C.V.O.; Mr. Thomas Hay, V.M.H., Superintendent of Hyde Park, has been made M.V.O., and Mr. George Monro, M.B.E., of Messrs. George Monro, Ltd., Covent Garden, has been made C.B.E. We offer the hearty congratulations of ourselves and our readers to these gentlemen on the distinctions awarded them.

Kelway Challenge Trophy and Medal for Gladioli.—The Kelway Challenge Trophy and Medal (Fig. 204) is offered annually at the British Gladiolus Society's Show for an exhibit of British Gladioli. The conditions for the award are as follows:—Thirty-six spikes of Gladioli, staged three in a vase. No restrictions as to number of varieties or spikes of a sort, but all must be of British origin, and purchased only from a British firm; British origin to mean raised, distributed or catalogued by a British amateur, and/or professional, and/or commercial horticulturist. Any variety or species of Gladiolus is eligible (from whatever section), and the name of the section need not be given. The first prize is the Kelway Silver Challenge Trophy, presented by Messrs. Kelway and Son, Langport, in commemoration of the pioneer work of the late James Kelway amongst Gladioli, to be won three times in all by the same competitor before becoming his or her property, and the Kelway Silver Medal; second prize, one guinea (also given by Messrs. Kelway and Son); third prize, Bronze Medal. Full particulars may be had on application to Mr. A. E. Amos, Hon. Secretary, The British Gladiolus Society, 10, Bergholt Road, Colchester.

Gardeners' Club.—The annual dinner of the Gardeners' Club was held at the Clarendon Restaurant, Hammersmith, on May 25, when a large number of members attended, and a very pleasant evening was spent. The annual meeting preceded the dinner, when the following officials were elected:—Chairman, Mr. C. P. Raffill, Royal Botanic Gardens, Kew; Vice-Chairman, Mr. J. G. Weston, Chatsworth Gardens, Bakewell; Treasurer and Secretary, Mr. F. C. Puddle, Bodnant Gardens, North Wales; Committee, Messrs. A. Bedford, Exbury; A. Bullock, Copped Hall; J. Comber, Nymans Park; T. Hay, Hyde Park; F. Jordan, Ford Manor; T. Pateman, Brocket Hall; and D. Wilmshurst, Swanley College.

The King's Birthday Gift.—We are interested to note that on the occasion of his birthday, the King has granted to the National Playing Fields Association the use of two of the paddocks in Bushey Park, Hampton Court, for playing fields for boys and girls. The ground, about six acres in extent, is situate at the Kingston end of Bushey Park and will be laid out for organised and other games. When making the gift the King expressed his great interest in the movement, which he hoped would be attended with success.

Bristol's Banana Trade.—When welcoming the annual conference of the United Commercial Travellers' Association of Great Britain and Ireland to Bristol on Monday last, the Mayor, Alderman Dyer, said that, last year, 7,000,000 bunches of Bananas, averaging 100 fruits to a bunch, were unloaded at the port of Bristol.

A Tour of the Mid-Kent Fruit Plantations.—Some two hundred fruit growers from all parts of the country recently completed a three day's tour of the fruit plantations of mid-Kent. The itinerary was arranged by the National Fruit Farmers Union, and the outing is the fifth of its kind. Visits in previous years have been made to Cambridge, Wisbech, Herefordshire and Worcestershire, East Kent and Norfolk. The Royal Pavilion Hotel, Folkestone, was the headquarters for the tour, and a special train to Maidstone was provided each day for the delegates to take up their programme. According to Mr. N. B. Bagenal, Horticultural Advisory Officer to the Kent County Council, whilst Hops have been grown for a long number of years and have always been regarded as a highly specialised industry, the production of fruit until comparatively recent times was not a matter of care and research. With the decline of the Hop industry at the end of the nineteenth century, the fruit industry of Kent entered on a new and rapid stage of development, and during the last fifty years the acreage has increased to a remarkable extent. In 1891, there were 20,130 acres of orchards, and 18,061 acres under small fruit in the county. By 1925, while the acreage of small fruits had declined slightly, that of orchards had increased to 53,844 acres. Of a total of 306,433 acres devoted to fruit-growing in England and Wales, 71,230 are in Kent. On Tuesday, May 31, the party visited Clock House Farm, the Loddington Fruit Farm at Linton, and the Court Lodge Farm at East Peckham. Other farms visited during the tour were Mascall's Pound and Newman's Farm at Paddock Wood, Merriam's Farm at Leeds, and the Allington Farm, Maidstone. Frost did much damage to the fruit crops in Kent on the low land, but in some parts the prospects are very good, and on the higher land in the Maidstone district, Bramley's Seedling Apple promises to produce eighty per cent. of an average crop, whilst a full crop is expected of Lord Derby on the high land and sixty per cent of the average in the lower orchards. The variety Newton Wonder was not so badly affected by frost as Bramley's Seedling. Whilst Victoria Plums have failed, the Czar variety promises to give a good yield, and Damsons two-thirds of an average crop. The crops of Black Currants and Strawberries are both much below the average owing to the frost. A visit was paid to the British Fruit Company's Station at East Peckham where grading and packing are carried out on exactly similar lines to those followed in the United States and British Columbia, but the growers' fruit is not pooled. The visitors were received at the East Malling Research Station by Mr. R. G. Hatton, the Director, where experiments in Apple-pruning and the cultivation of Black Currants were inspected and the visitors were shown the investigations which were being carried on with Apple stocks and Plum stocks.

---

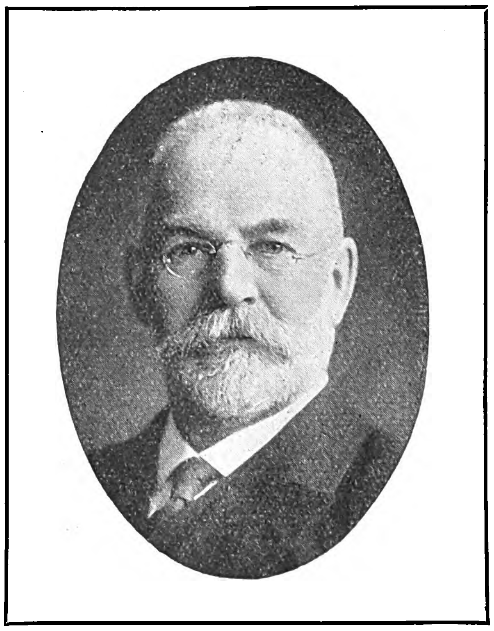
* Studies in the Root and Shoot Growth of the Strawberry, I. *Journal of Pomology and Horticultural Science*, V., 3 July, 1926.

Honour for French Horticulturist.— We are pleased to learn that M. Alfred Nomblot, Secretary of the French National Horticultural Society, has been awarded by the Dutch Government the Order of Orange-Nassau, with the grade of Commander, in recognition of his services in connection with the Centenary Show held at Paris recently, in which the Dutch growers largely participated. We may state that this honour is very much coveted, being granted very sparingly, and we congratulate M. Nomblot warmly on this distinction, which his arduous and successful labours in connection with the exhibition have obtained him.

Horticultural Education Association.—According to the twenty-first annual report of this Association, the members of which are engaged in horticultural education and research, the membership is now more than 130, and includes representatives of practically every county in England, Wales and Scotland, as well as one member in Northern Ireland. The President for the year 1926-1927 is Mr. A. Burgess, Horticultural Superintendent under the Surrey Education Committee. Mr. A. Simmons, Honorary Secretary of the Association, having resigned this office, Mr. W. H. Neild, Long Ashton, was elected to the vacancy. The balance sheet shows a balance in hand of over £50.

Fruit Competitions for Amateurs.—The Royal Horticultural Society has arranged two competitions for fruits, open only to amateurs, to be held on July 19 and August 3, in conjunction with the fortnightly meetings on these dates, in the Vincent Square Hall, Westminster. The one on July 19 is scheduled as a Cherry and Soft Fruits Competition, and includes twenty classes for Cherries, Gooseberries, Black Currants, Red Currants, White Currants, Raspberries, Figs, Loganberries, Blackberries and other Rubi. The most important classes are those for a collection of Cherries in not fewer than six varieties, in which the first prize is the Bunyard Silver Medal and £4, the second prize the Bunyard Medal and £2, and the third, £1; for a collection of Gooseberries in not fewer than nine varieties, in which similar prizes are offered, and for a collection of twelve dishes of any of the fruits mentioned in the schedule, not fewer than six kinds, not more than four dishes of any one kind, and not more than one dish of any one variety. In this class the first prize is the Silver Hogg Medal and £6, the second the Hogg Medal and £3, and the third £2. Entries for the Cherry and Soft Fruits Competition must be sent not later than first post on Tuesday, July 12, and for the other competition, not later than by first post on Wednesday, July 27. The competition on August 3 is for Peaches, Nectarines, Apricots, Plums, Cherries, Rubi and Apples. The Silver Bunyard Medal and £5 is offered as the first prize for a collection of Peaches and/or Nectarines in not fewer than six varieties, and a similar Medal and £4 is offered for six early varieties of cooking and/or dessert Apples, whilst the Silver Hogg Medal and £6 is offered as a first prize for a collection of twelve dishes of the fruits mentioned in the schedule. All amateurs, whether Fellows of the Society or not, unless excluded by some special regulation, are invited to compete. Copies of the schedule may be obtained from the Secretary, Royal Horticultural Society, Vincent Square, London, S.W.1.

Sir William George Lobjoit, O.B.E.—We offer hearty congratulations on behalf of ourselves and our readers to Sir William Lobjoit on the honour bestowed on him by the King in his recent Knighthood, which was awarded "for Public Services." During the time Sir William Lobjoit held the office of Controller of Horticulture at the Ministry of Agriculture he did valuable work in promoting the best interests of the country as well as of horticulture generally, and whilst the holder of an official appointment of this nature cannot hope to please all, everyone is agreed that no more suitable person could have been chosen, and the members of the trade generally recognise that he was one of their best friends. We take the opportunity to publish the portrait of Sir William Lobjoit, and to wish him every success in the future.



SIR WILLIAM GEORGE LOBJOIT, O.B.E.

Gardener Injured in a Motor Accident.—Mr. Mathers, gardener at Mereworth Castle, Maidstone, was injured in the motor-car collision in which his employer's wife, Lady Oranmore and Browne, was killed on the 7th inst. Lord Oranmore, Lady Oranmore's lady secretary, and the chauffeur, were also injured more or less seriously.

Sending Soft Fruits by Post.—The postal authorities state that at this season of the year considerable quantities of Strawberries and other soft fruits are sent through the post, and many of the packages are found in the course of conveyance to have been inadequately packed, with the result that not only is the fruit damaged, but damage, for which the sender of the fruit is liable, is done to the contents of other parcels. The Postmaster-General, therefore, considers it necessary to draw the attention of the public to the method of packing which has been found by experience to afford the best protection. The packing must be such that the juice cannot exude. A metal box with a tightly-fitting lid and securely tied with string crossing the lid in both directions should be used. No parcel will be accepted which contains soft fruit packed in a chip or wicker basket, or a cardboard box, or a tin box with a lid that is not tightly fitting. Parcels of fruit should be conspicuously marked "Fruit, with Care."

Inspection of Growing Crops of Potatos in Scotland.—The Board of Agriculture for Scotland remind all Potato merchants who have not yet applied for the inspection of their Potato crops that June 18 is the last date for the receipt of applications. Particulars of the scheme were published in *Gard. Chron.*, May 28, p. 365. Any grower who desires further information on the subject should communicate without delay with the Secretary, Board of Agriculture for Scotland, York Buildings, Queen Street, Edinburgh, from whom forms of appliction may be obtained. Applications received after June 18 will not be accepted unless accompanied by a double fee, but no guarantee can be given that the inspection will be undertaken in such cases.

Gardeners' Royal Benevolent Institution.—The Festival Dinner (eighty-second anniversary) in aid of the funds of the Gardeners' Royal Benevolent Institution will take place at the New Princes' Galleries, on Wednesday, June 29, at 7.30, under the Presidency of Major-General The Lord Treowen, C.B., C.M.G. Contributions to be placed on the Chairman's subscription list are earnestly solicited, and will be gratefully received and acknowledged by the Secretary, Mr. George J. Ingram, at the offices, 92, Victoria Street, S.W.1.

Dutch Fruits and Vegetables.—Mr. B. Gerritzen, Horticultural Adviser to the Netherland Legation, delivered one of the Chadwick Public Open-air Lectures at the Chelsea Physic Garden, on Tuesday, May 31. His subject was "The Growing, Marketing and Exporting of Fruit and Vegetables in the Netherlands." Mr. Gerritzen gave a short historical review of the cultivation of fruits and vegetables in the Netherlands from the Middle Ages, when it was exclusively in the hands of the monasteries and the nobility. When, however, the nobility sank into poverty in the sixteenth century, the working classes embarked on commercial horticulture and found ready markets for their produce in the growing cities and towns of Amsterdam, the Hague, Delft, Schiedam and Rotterdam. By the beginning of the nineteenth century certain horticultural districts were already in a fairly flourishing condition, and, favoured by suitable soil and climate, and being excellently situated between manufacturing countries with ever-growing populations, the Netherlands developed important centres of cultivation for the export trade where, eventually, glasshouses were erected for forcing purposes. The lecturer described a few of the leading districts where growers had specialised, notably in the Westland, where glasshouse produce and early crops were produced; and at the Langendyk, where outdoor produce, especially store Cabbage was the chief culture. By the experience gained during centuries, the Dutch growers learned their business exceptionally well, but as they had to rely more and more upon foreign markets, they had also to meet the requirements of consumers abroad. Nowadays, great attention is paid to maintaining the quality of the crops, rendering them fit for dispatch over long distances, and to grading and packing. Most of the difficulties arising had been met by a well-organised marketing system, the establishment of Dutch auctions, and at present the many —about 170—auction marts. There was a Federation of Auction Societies dealing in vegetables and fruits, and, in co-operation with exporters, a Committee for the control of export had been founded. This Committee drafted uniform regulations as to packing and grading, and could be joined by auction societies and exporters, as members, who were entitled to attach labels to the packages of produce provided the packing is in accordance with established standards. So, by co-operation between growers and exporters, every endeavour is made to ensure that only first-class produce is sent to foreign countries. The German and British markets are of prime importance to the Netherlands, Germany receiving about fifty per cent., and Great Britain thirty-six per cent. of the produce exported. The lecturer followed with a summary of the standards fixed for the different products, and emphasised that only first quality material could be shipped under the label already referred to. Mr. Gerritzen observed that British and Continental tastes differed in regard to vegetables, and for this reason certain products could not find a market in this country. Specimens of Dutch vegetables and fruits available at this season of the year were exhibited in the packages in which they had arrived. A few maps of the Netherlands and horticultural districts were also exhibited, also numerous pictures of auctions and cultures, all very typical of the country. For those especially interested in the development of the export trade some extracts from statistics were provided in tabular form.

Association of Economic Biologists.—The next meeting of the Association of Economic Biologists will be held on the 17th and 18th of June, at the South Eastern Agricultural College, Wye.

Fruit Growing in Public Open Spaces.—While a writer in a popular weekly periodical advances, as new, the suggestion that fruit trees should be planted in our public parks and open spaces, instead of purely ornamental trees, a Paris correspondent of *The Observer* relates, in last Sunday's issue, a lamentable happening in connection with fruit-growing in public places. It seems that in one of the suburbs of Paris a park-keeper caught two boys taking Cherries from a tree in the grounds. The boys escaped capture and, from what they considered to be a safe distance, jeered at the park-keeper, who drew a revolver and fired, seriously wounding one of the boys. This could scarcely have happened in our parks, but it tends to show that, especially where fruit is growing, as "boys will be boys," fruits are not safe in public places. As many of our readers are aware, the advocacy of planting fruit trees in public grounds is no new thing, and many years ago some of our correspondents advanced arguments for and against the suggestion.

Fire at Parkhurst Forest.—On Whit-Sunday afternoon a fire which broke out in the undergrowth of Parkhurst Forest, Isle of Wight, quickly assumed serious proportions, and a party of convicts from the Camp Hill Prison, near by, were brought out to help beat out the flames. A detachment of the Argyll and Sutherland Highlanders from Parkhurst Barracks joined the convicts and, after several hours' hard work, the fire was subdued, but several acres of the forest were badly burned.

Masters Memorial Lectures, 1927. — The Masters' Memorial Lectures will be delivered on Tuesday and Wednesday, June 21 and 22, at 3 p.m., by Dr. C. H. Ostenfeld, of Copenhagen. The title of the lectures is "Some Remarks upon Hybrids between Species in Flowering Plants."

New Species from the Andes of the Argentine. *Kew Bulletin* No. 4, 1927, contains the descriptions of some new species collected by Mr. H. F. Comber during his expedition to the Argentine in 1925. His collection of dried specimens is being worked out at Kew by Mr. N. Y. Sandwith. Preference was given to some two hundred species which appeared to be of special horticultural interest, and of which Mr. Comber was able to obtain seeds or living vegetative material; the naming of this part of the collection has been completed. It contains a number of interesting and beautiful plants and fourteen species which proved to be new to science. We understand it is proposed to publish an annotated copy of this list at a later date, but meanwhile technical descriptions (in Latin) of the new species have been published in the *Bulletin* under the following names:—Berberis Comberi, Malvastrum corymbosum, Cristaria eburnea, Larrea simulans, Anarthrophyllum ornithopodum, Adesmia guttulifera, Cassia egregia, Chuquiragua straminea, Calceolaria poikilanthes, Argylia robusta, Verbena cedroides, V. Comberi, V. dolichothyrsa, V. spissa.

Appointments for the Ensuing Week.—MONDAY, JUNE 13: Romsey Gardeners' Association's meeting; United Horticultural Benefit and Provident Society's meeting; Guildford and District Gardeners' Association's meeting. TUESDAY, JUNE 14: Jersey Gardeners' Society's meeting. WEDNESDAY, JUNE 15: Royal Gardeners' Orphan Fund meeting. FRIDAY, JUNE 17: Association of Economic Biologists meet at the S. E. Agricultural College, Wye (two days).

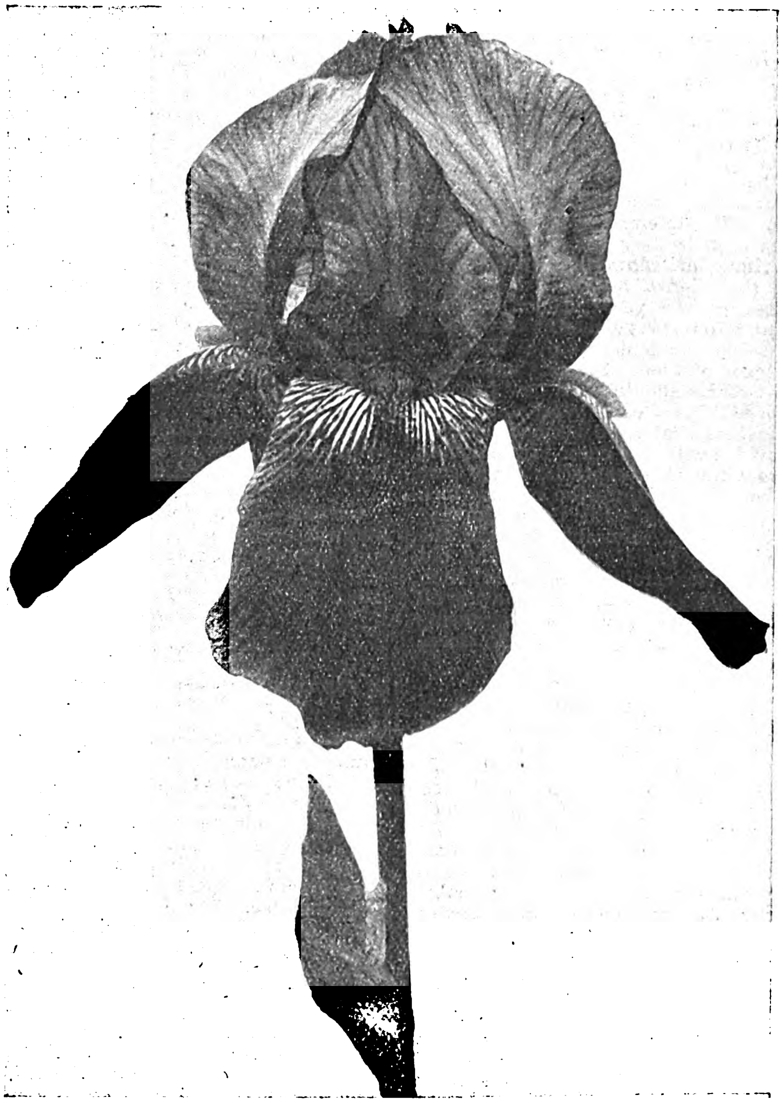


FIG. 196.—IRIS AKBAR.
(see p. 418).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Out-door Grapes.*—Will you give a corner to the memory of Clement Hoare? So far as his work upon *The Culture of the Vine on Open Walls* is concerned, he deserves well, indeed, of his countrymen. I acknowledge myself under grateful obligation to him; and, at this season of the year, would draw the attention of all who have out-door vines to his excellent treatise. His "Weekly Calendarial Register," therein, is worded in such a manner that in whatever mode vines happen to be trained, his directions are of value, therefore all should study it; but I would particularly direct attention to the simplicity, the saving of labour, shreds and nails, and to the wonderful increase of fruit to be obtained by following his favourite method—cutting away all old wood except what is barely necessary to furnish the young shoots annually required, and training these on the long-rod system, each rod to bear in the succeeding year, and then to be cut out at two or three eyes from its base. Notwithstanding his recommendation to "cut down" established vines, and begin *de novo*, I accommodated my vines gradually to the system and have now four successive tiers at the back of my house; that is, a succession of short horizontal branches, at the ground and at three different heights, and these furnish rods which are serpentined in their first year, and in the second year branch out right and left, amply cropped. These side branches are so nailed as to leave perpendicular intervals for the rods of the current year to occupy; each tier is six or eight feet in height. My success has been remarkable, and I have had large Black Hamburghs so well ripened that they have occasionally had quite a *nuance* of Frontignan flavour; and I have often thought that, like the Bicton Pines, they are a proof of what perfect ripening in the open air accomplishes. How can horticulturists be contented with stagnant warmth in their hothouses? *G. W., Gard. Chron., June* 12, 1852.

Publications Received.—*Honey and the Bee*, with Recipes by James Henry Cook, 121, Aston Brook Street, Birmingham; Health from Food Library No. 12, price 2½d. post free.—*Seeds and How to Raise Them*, by Richard Sudell, A.R.H.S., L. H. Chase, Abbey Road, Chertsey, Surrey; price 1s.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Phalaenopsis. — These handsome Orchids commence to make new roots soon after they have finished flowering. Such species as P. amabilis, P. Schilleriana, P. Stuartiana, and others of this type are still in bloom, and will require attention as the flower scapes fade or are removed from the plants. A small division is often set apart for these showy Orchids, and while this is not necessary, if sufficient plants are included to allow of growing them by themselves, it is much easier to cultivate them. Phalaenopsis may be grown in pots, pans, baskets, cylinders, or even on blocks of wood and rafts, but pots or baskets are the best receptacles. Whichever kind is used, they should be well-drained with clean crocks, as no plant resents a sour compost more than Phalaenopsis. The different species and varieties vary as regards their manner of growth and their time of flowering, hence the repotting of the plants has to be done at different times of the year. Those who are fortunate enough to possess a good stock of these plants should take particular care of them, as there is a danger of them becoming extremely rare. These Orchids should have new rooting-material afforded them each year, and those growing in baskets that have become decayed should be provided with new ones. In removing the plants from the old receptacles every care should be taken not to injure the roots, which cling to the sides, and with those growing in baskets, it is often advisable to take the basket to pieces to get them out. The old material should be carefully removed from those growing in pots or pans, cutting away all decayed roots, dead root-stocks, and cleansing those that remain by immersing them in clean, tepid rain water.

Compost.—The compost should consist of live Sphagnum-moss and Osmunda-fibre in equal proportions, with a layer of clean heads of Sphagnum-moss over the surface. The moss should be thoroughly searched for slugs and other pests before it is used. Having finished the potting, water the plants liberally with tepid rain-water, allowing them to become dry before watering them again. The Phalaenopsis is very floriferous, and this is, no doubt, one cause why the plants often deteriorate; the spike should be cut soon after the last flower has opened, and those plants which have been disturbed should not be allowed to carry a flower-scape until they are thoroughly established. Phalaenopsis enjoy the temperature of the warmest house the whole year round; the day temperature at this season should range from 75° to 80°, according to the brightness of the weather. When the plants enter their resting season, a slightly lower temperature will suffice, and both the plants and the houses should be kept drier.

THE KITCHEN GARDEN.

By R. H. Crockford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Seakale.—Thin the young shoots, leaving only one strong crown to each plant; in doing this take care not to disturb the roots, as this would give a check to the plants. Keep the ground well hoed between the rows. A light dressing of salt may be given with advantage, especially on dry soils.

Asparagus. — Newly-planted Asparagus is growing freely, and care must be taken that the young plants do not suffer from drought. Seedlings in newly-sown beds should be thinned, so soon as they are large enough, allowing each plant a space of about fifteen inches each way. Cutting should now be discontinued in established beds or the crowns will be weakened. Give the beds a fair dressing of salt, and feed the plants with guano two or three times during the season. During dry weather and especially on light soils, liquid manure will prove very beneficial. Keep the beds clear of weeds. Give necessary support to the growths of the plants to prevent them from being broken by strong winds.

Peas.—After the middle of the present month, and especially in cold, wet districts, it will not be wise to make further sowings of late varieties of Peas; but during the next few weeks sowings may be made of such sorts as Pilot, Gradus, Laxton's Superb, or any of the early varieties. Attend to the necessary staking of this crop. Keep the ground stirred with the hoe, and in dry weather mulch the rows with lawn mowings or litter, which will do much to conserve the soil moisture. Take precautionary measures to ward off attacks of thrips by damping the foliage in the evenings of hot days with weak soot water, also by spraying the plants occasionally with Quassia extract, or anything which would make the foliage distasteful.

Spinach.—Maintain a succession of this vegetable by sowing at least every fortnight. Should the weather be very dry, soak the soil in the drills before sowing the seeds. Make further sowings of New Zealand Spinach. This crop will prove very useful, especially on soils where ordinary Spinach runs to seed quickly.

Coleworts.—Seeds of Coleworts should be sown to produce plants for early supplies, and again later for late autumn use.

Carrots.—Make small sowings of Carrots on frequent occasions where they are required to supply roots in a very small stage.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Strawberries in Pots.—Only young, vigorous plants are capable of producing good runners early in the season; maiden plants put out last August and divested of all their flowers will give an abundance of runners in June and early July. To have good plants with ripe crowns suitable for starting in November and December the runners should be layered so soon as they are available. These may either be layered direct in five-inch pots or in sixty-sized pots; if the larger size is used they should be clean, dry, and filled with suitable compost. Strawberries will grow in almost any free, rich soil made pervious to the free passage of water by the addition of old lime rubble, bone meal, pounded oyster shells or a little charcoal, according to the texture of the soil. As the compost needs to be made very firm by ramming, it must be used on the dry side, and will be in a suitable condition for use if it is prepared a few weeks before it is wanted. When the runners are placed direct in the pots in which they will fruit, the crowns should be above the surface of the soil, their natural position, and will become red and hard before autumn. Such crowns invariably throw fine trusses of bloom and give good results. Watering is a very important detail of cultivation as the pots soon become filled with roots. Weak liquid manure is of great benefit to the plants from the time they are potted until they show signs of ripening. Later kinds, which ripen their fruits when bright sun and drying winds prevail, should have larger pots, and the compost may be a little heavier in texture, as the roots will penetrate the hardest compost, when they are in a healthy condition. The pots do not require a large amount of drainage material, but the crocks should be clean and well-placed. Opinions vary as to the value of overhead watering in hot, dry weather, but unless the water is soft and warm, the less moisture is cast over the leaves, the better; summer showers are beneficial.

Compost.—If a good supply of loam has not been secured, turf from an old pasture should be cut and stacked. As the material is placed in layers, dust it liberally with soot, which is a good deterrent to wireworms. Burnt earth may be added to heavy loams, whilst marl and old cow-manure are beneficial to light, sandy soils. Strong liquid manure may be poured on the latter with excellent results, in fact, any loam carted in a dry state may be watered freely with liquid manure before it is stacked. The compost may then be chopped down as wanted, and should lie exposed to the sun and air until it is dry and warm.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Violas.—If Violas are expected to furnish a display of bright flowers throughout the summer they will require a good deal of attention, especially in the south, where hot, dry weather often proves very trying to them. Under such conditions frequent top-dressings and waterings are essential; in the north, where cooler and moister conditions obtain, Violas are not so much trouble to maintain in good condition. Where they are required for a spring display the stock should now be raised either from cuttings inserted in cold frames, or by division of the old plants and putting the portions in the reserve garden. Although young plants are smaller and require closer planting, they usually winter better than older ones, especially on heavy, wet soils.

Lunaria biennis (Honesty).—This old-fashioned plant is very charming in wild or semi-wild parts of the garden, and it is surprising it is not more generally grown, not only for its fragrant purple flowers, but also for the silvery, flat seed-pods that succeed them. The white-flowered variety is very beautiful when grown against a dark background of Yew, or some other dark evergreen. Although Honesty may be sown in the nursery garden and the young plants transferred to their flowering positions, it is best to sow the seeds where the plants will flower; they should be sown in irregular drifts, in as natural a manner as possible, and in suitable conditions; there is no reason why this plant should not become naturalised. The present is a suitable time to sow the seeds.

Hesperis matronalis.—This old-fashioned, fragrant flower is also deserving of more general cultivation; it is, perhaps, seen at its best when naturalised in shrubberies or in shady places in thin woodland. It is a perennial, but a stock may easily be raised from seeds, which may be sown at this time in the reserve garden. There are several double varieties, although some of them have, I am afraid, disappeared from cultivation, the white-flowered variety being the most common. Well-grown plants attain a height of three feet and are very beautiful, producing long spikes of fragrant, Stock-like flowers. The double Rockets have always, and not without reason, been regarded as difficult subjects to cultivate, and especially in the south. In the north and cooler parts of the country they may be more easily grown. It is necessary to propagate young stock every year; after the plants have flowered the shoots should be partially shortened, and when young growths have started from the base the plants may be lifted and divided, planting them in the reserve garden until the autumn. Another method of raising stock is to make cuttings from the side-shoots, and insert them in a cold frame, or even out-of-doors, as they will root readily if kept shaded. The best of all methods of increase is to keep a stock of plants specially for propagation, not allowing them to flower; these plants will develop plenty of young shoots suitable for use as cuttings early in the season.

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Souvenir de la Malmaison Carnations.—After the flowers have been cut from these plants the latter may be removed to a cold frame and allowed to remain a while before the operation of layering takes place. Should the weather prove hot and dry, it will be necessary to shade the plants from bright sunshine. Layers are best obtained from young plants that have been grown for one season only. Those that are to be potted on to grow into large specimens may receive this attention so soon as it is convenient. After potting the plants, water should be given the roots sparingly, but at the same time never allow them to suffer from lack of moisture. Spraying the plants with soft water during hot, dry weather will help them to become re-established under more favourable conditions. Although there are numbers of varieties, the best are probably Duchess of Westminster, Old Blush and Princess of Wales, and if only a small collection is grown it will be found difficult to surpass these three sorts.

Calceolarias.—Seeds of herbaceous Calceolarias may be sown now to obtain flowering plants early next spring, and a second sowing may be made in July for a later batch. The receptacles should be filled with a light, open compost, which should be watered with a fine rose can several hours before sowing the seeds, which are small and need to be sown on a fine, even surface. It is not necessary to cover the seeds with soil; the surface may receive a light sprinkling of fine silver sand. Cover the seed-pans with a sheet of glass and stand them in a cool greenhouse, keeping their surroundings moist and the soil shaded from bright sunshine. Calceolaria seeds germinate very quickly, therefore watch the pan carefully and remove the glass immediately the seedlings appear. At this stage, great care is needed, for the tiny seedlings must never lack moisture or they would dry up and die off quickly. The seedlings should be pricked off immediately they can be handled in a light, open compost and stood in a frame or greenhouse facing north-east, where little shading will be necessary. Greenfly is somewhat troublesome to this plant and must be rigorously suppressed by spraying the plants on frequent occasions with a suitable insecticide.

Salvia splendens and S. leucantha.—Plants of these Sages that are intended to be grown as large specimens should be ready for placing in the pots in which they are to flower. The soil may consist chiefly of good loam mixed with old Mushroom-bed manure and a dash of bone-meal, with sharp grit added to render the texture porous. Place the plants in a cold frame until they have become established in the new compost when they may be stood out-of-doors, for preference in a place shaded from mid-day sun. Red spider attacks these Salvias, but syringing the plants in the evenings with clear water will keep this pest in check.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Gooseberries.—To obtain large dessert berries of the best quality the bushes should not be cropped too heavily, while the foliage should be kept clean and free from red spider and other insect pests. Bushes that are cropping heavily should be thinned severely of the fruits. The green berries removed may be used for tarts or for bottling; if for the latter purpose they should be of an even size. If the bushes are growing on light land a liberal mulching of decayed manure over the roots, followed by a soaking of water or liquid manure at intervals in dry weather will prove exceptionally beneficial to the crop.

Fig Trees.—These trees are growing freely and are well studded with young fruits. As the new growths extend, such as are required for furnishing the space or for fruiting next year should be secured in position. Suitable shoots may be tied over the older branches at intervals and others fastened to the walls or wires. Thin the shoots, if necessary, to prevent overcrowding, but do not stop any of the leading growths of those that are required for fruiting next season.

Loganberries. — Where Loganberries are planted in good soil the growths are usually strong and numerous. Their number should be reduced at an early stage, retaining only sufficient for filling the available space and to take the places later of those that have fruited. In some soils the Loganberry grows and crops well without much help at the roots, but where the land is porous and light, mulchings of manure and repeated waterings with liquid manure are essential to obtain good results. Loganberries are useful for many purposes and should be gathered before the seeds become hard.

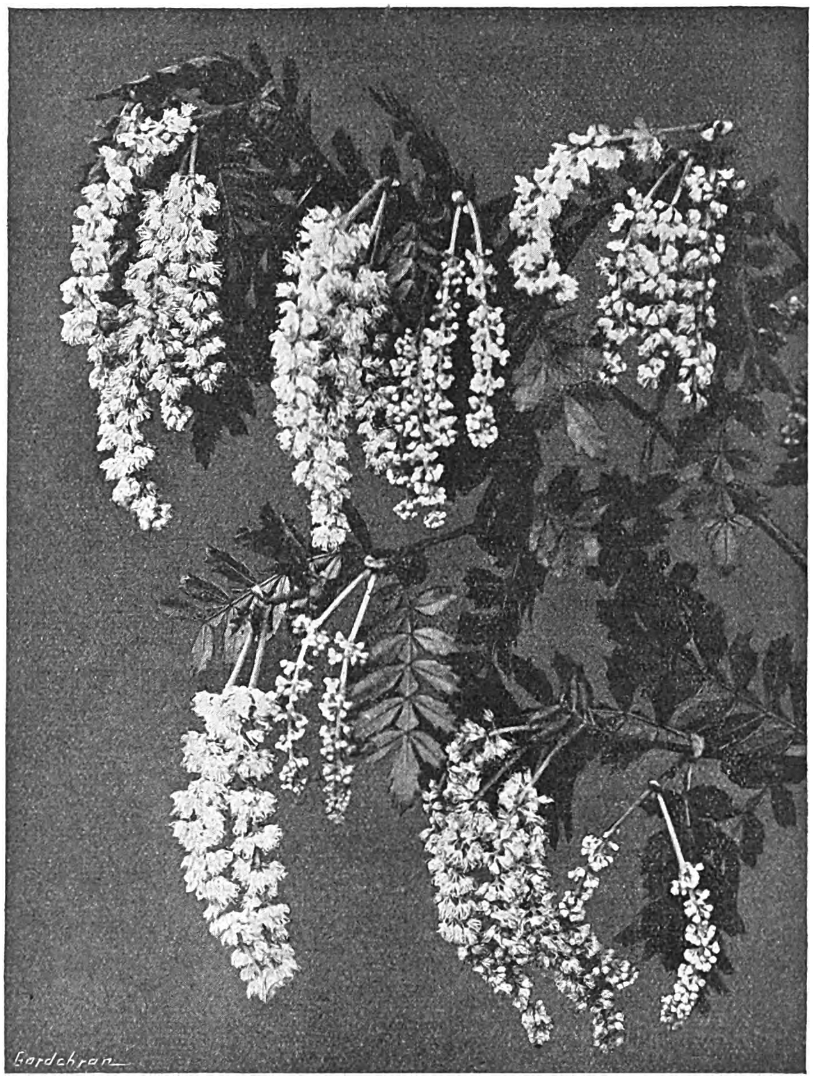


FIG. 197.—WEINMANNIA TRICHOSPERMA.

R.H.S. Award of Merit, May 25. Flowers white, with pink-tipped anthers.

Shown by Mr. Gerald Loder. (see p. 376).

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire

Figs.—The first crop of Figs in heated houses is now over, and if the tips of the growing shoots have been stopped regularly, the second crop of fruits should be swelling rapidly. At this stage the trees must never be allowed to suffer for lack of moisture at the roots, and frequent applications of diluted liquid manure are of great assistance in maintaining vigour and promoting the swelling of the fruits. Remove all superfluous growths and keep the young shoots tied so that no part of the trees become overcrowded, and thus prevent the sunlight from reaching the fruits. In cold houses and on south walls out-of-doors the fruits of the first crop are swelling, and the same procedure is recommended as above, although these trees will require longer time to perfect their fruits, but they form a most valuable succession where Figs succeed in these conditions, extending the season until late September. Young Fig trees are often disappointing if allowed a free root-run, and succeed better if only given a limited space at first, enlarging the border as becomes necessary.

Thinning Grapes.—Late varieties of Grapes and those grown in cold houses are now ready for thinning, and every opportunity must be taken to get this important work completed before the berries become tightly wedged in the bunches, as they are then much more difficult to thin, and the work is correspondingly slower; moreover, when the berries are crowded there is a danger of injury in thinning them. The chief objection to growing several houses of Grapes entirely without fire-heat is that they usually develop uniformly, and all require attention at the same time. The laterals and sub-laterals should be kept well under control by stopping the latter at the second or third leaf and not allowing them to grow too vigorously and draw the sap from the bunches. The main shoots, or leaders, may be allowed to extend until the thinning has been completed, when they should be stopped by pinching out the growing points. So soon as the thinning has been completed a top-dressing of an approved vine manure should be applied and well-watered in, and a good layer of farm-yard manure spread over the borders to conserve moisture, and also to act as a stimulant at future waterings.

ROSE GARDEN.

SOME OLD-TIME ROSES.

Reference to the Roses exhibited in pots at the Royal Botanic Society's meeting on May 10, 1848, will perhaps recall happy memories to old rosarians. The report runs:—"Concerning Roses in pots, too much can hardly be said, for seldom have we seen better collections. The flowers were large and fine and the foliage clean and healthy. The varieties exhibited by Messrs. Lane, Messrs. Paul and Mr. Francis (of Hertford) included Duchess of Sutherland, Louis Bonaparte, Baronne Prevost, Armosa, Mrs. Elliot, Aubernon, Adam, Grand Capitaine, Lane, Duc de Chartres, Miellez, Lady Alice Peel, Cels multiflora, Comte de Paris, Mrs. Bosanquet, Madame Laffay, Paul Perras, Madame Lacharme, William Jesse, Taglioni, Souvenir de la Malmaison, Triptoleme, Coupe d'Hebe, Goubalt, Bouquet de Flore, General Allard, Felicite, Eugene Beauharnais, Comte d'Eu, Augustine Mouchelet, Princess Helen, Caroline and Fabvier.

In a special class for yellow Roses, Mr. Lane secured the premier award with Venusta, Banksia, Harrisonii, Nisida, Solfaterre and Vicomtesse de Cazes."

The grand old Souvenir de la Malmaison is even now beloved of descriminating gardeners, and the yellow Harrisonii is not infrequent in gardens, but the majority of the others have long since disappeared. Many of them, however, retained their popularity for several years subsequent to 1848, and their names will enable old rosarians to visualise from memory the hopes and fears, the victories and defeats of bygone shows.

In the *Floricultural Cabinet* for 1848, Mr. Rivers gives the best twelve H.P. Roses as follows: Aubernon, crimson; Augustine Mouchelet, brilliant red; Baronne Prevost, bright red; Countess Duchatel, bright rose; Dr. Marx, brilliant red; Duc d'Aumale, brilliant crimson; Duchess of Sutherland, handsome rose colour; Lady Alice Peel, deep pink; La Reine, brilliant, glossy rose colour; Madame Laffay, rosy crimson; Marquis Binella, pale flesh, and Robin Hood, bright pink.

In the same article appears the following interesting passage: "It is only in cases where it is wished for the qualities of a particular Rose to predominate that the removal of the anthers of the Rose to be fertilised, is necessary. Thus, if a yellow climbing Rose is desired, by the union of the yellow Briar with the Ayrshire, every anther should be removed from the latter, so that it is fertilised wholly with the pollen of the former. In some cases, where it is desirable to have the qualities of both parents in an equal degree, the removal of the anthers must not take place. Thus I have found, by removing them from the Luxembourg Moss, and fertilising that Rose with a variety of Rose gallica, that the features of the Moss Rose are totally lost in its offspring (the seedlings) and they become nearly pure varieties of the former; but if the anthers of the Moss Rose are left untouched, and it is fertilised with Rosa gallica, interesting hybrids are the result, more or less mossy."

This passage should be full of interest, if only from the fact that it is the written word of a gentleman who will for ever occupy a foremost position in British Rose history.

The 'seventies and 'eighties witnessed the advent of very many grand Roses, and it is particularly interesting to realise how few now remain; some outstanding varieties of that period were: Hybrid Perpetuals—Abel Grand, silvery rose; General Jacqueminot, crimson-scarlet; Alfred Colomb, fiery red; Beauty of Waltham, rosy-crimson; Captain Christy, soft flesh; Duchesse de Vallambrosa, soft rose, bright pink centre, passing to white; Duke of Edinburgh, fine vermilion; Duke of Teck, crimson-scarlet; Duke of Wellington, bright crimson; Fisher Holmes, rich crimson; John Hopper, deep rose; La France, rose; Louis Van Houtte, reddish-scarlet, shaded; Prince Camille de Rohan, crimson-maroon; Paul Neron, deep rose; Star of Waltham, rosy crimson, and Ulrich Brunner, carmine-rose.

The Teas included Catherine Mermet, flesh pink; Madame Bérard, salmon-yellow; Madame de Watteville, white, shaded salmon; Madame Lambard, red; Perle des Jardins, orange-yellow; Souvenir d'Un Ami, deep rose and Madame Margottin, citron-yellow.

Many in this necessarily abbreviated list are still grown, others have passed out of cultivation; it is, however, an abiding joy to know that Maréchal Niel may even now win in its class, and that it, with such other old favourites as Gloire de Dijon and Niphetos, may long remain with us, worthy survivals of a past generation, and a glorious incentive to another.

Space will not permit of reference to hosts of other good Roses, but I cannot refrain from a passing thought of Cloth of Gold, that finest of all yellow Roses and the despair of every grower.

The Hybrid Teas of an earlier generation, such as Beauty of Stapleford, pink; Countess of Pembroke, satin-rose; Lady Mary Fitzwilliam, flesh; Nancy Lee, soft rose, and Pearl, flesh-white, are now almost forgotten; another Noisette, William Allen Richardson, is, like Maréchal Niel, ever with us, and the very name is redolent of an old-world garden in June. *Ralph E. Arnold.*

ALPINE GARDEN.

RANUNCULUS GRAMINEUS.

This is an attractive little plant of easy culture, suitable for a cool position on the rock garden.

Though by no means common, it has long been cultivated. It is mentioned by Parkinson in his *Paradisi in Sole*, in which work a double form is figured, though this does not seem to be in existence now. Free of growth, it has glaucous, lanceolate or linear leaves, with entire margins, and of a blue-grey colour.

The large flowers, borne on erect, slender stems, from six inches to twelve inches high, are of a glossy, clear, rich orange-yellow, and when produced abundantly, make a pleasing display. The species is figured in one of the early volumes of the *Bot. Mag.*, t. 164, and is a native of southern France and Italy. On the rock garden it should be planted in loamy soil in a cool, moderately sunny position. *A. G. F.*

GERANIUM ARGENTEUM.

This Geranium is one of the choicest members of its family for the rock garden. The silvery leaves are pleasing in outline and very beautiful generally; the flowers, an inch or more across, are of the palest shade of pink with a delicate network of very fine rose markings.

The plant grows well in the moraine; in fact, when not growing in a moraine it would seem that its lightness of habit demanded the placing of a thin layer of granite chippings on the surface of the pocket accorded it, in order to prevent the leaves and flowers from being splashed with soil. *W. H.*

DIANTHUS SQUARROSUS.

This delightful little Pink, of dwarf, tufted habit, enjoys a sunny, well-drained position in the rock garden, where it never fails to attract attention with its heavily fringed, pure white flowers and typical grey foliage.

The plant rarely exceeds three inches in height and forms a close cushion. It is a very old plant in gardens; it was introduced from Southern Russia in 1817. As with the majority of its congeners, D. squarrosus is readily propagated from cuttings. *Ralph E. Arnold.*

PHLOX SUBULATA × P. AMOENA.

As an admirer for many years of the dwarf Phloxes of the type of P. subulata or P. setacea, I was pleased to receive as an acquisition to my new garden a plant bearing the above name. I am not aware if it has another or varietal name, but it is desirable that it should have one.

The plant is an acquisition from the fact that it has larger flowers than most of the varieties of P. subulata; they are of a bright purple and quite effective in the rock garden.

The foliage resembles that of P. subulata, but the flowers come more nearly to P. amoena. *S. Arnott.*

RANUNCULUS LYALLII IN NEW ZEALAND.

We are indebted to Mr. David Tannock, Superintendent of the Public Gardens, Reserves and Plantations of New Zealand, for the photograph of Ranunculus Lyallii growing in the Dunedin Botanical Gardens and reproduced in the Supplementary Illustration of this issue. Mr. Tannock states that "the plants were obtained from the Mount Cook district, when they were at rest, in 1925, and planted in the raised border, as shown in the illustration, the soil of which was previously well trenched. The soil is mainly organic matter, from nine inches to one foot deep, overlying friable clay. Though on the hillside, this part of the gardens is never dry, and for the greater part of the year water soaking from the higher parts maintains a supply of moisture in the sub-soil. The Mountain Lily is usually found wild beside a stream, or in hollow where there is an abundance of moisture as well as excellent drainage, the material in which it is growing being mainly organic matter and stone chips. Previously we grew this plant indifferently in a moist position on the rock garden, and we also tried it beside a stream in the Rhododendron dell, but nowhere has it thriven so well as on the raised border. Last year there was a number of flowers and good foliage; this year there was an abundance of flowers and better foliage, which promises well for the future. We have collected all the seeds and are sending them to Kew and other gardens at home, and I feel certain that once this plant is established it will be appreciated, for it is certainly the finest Buttercup I know. We have also abandoned the rock-garden method of growing Celmisias, Veronicas and other native mountain plants, finding the raised border simpler, less expensive and more satisfactory."

FLORISTS' FLOWERS.

AURICULAS AT NETHER WARDEN.

In years gone by, when the cultivation of Auriculas was a prominent feature of horticulture, the northern cultivators of these plants could generally hold their own at the numerous spring flower shows, where special classes were provided for the different sections of these plants.

These exhibitions were brought vividly to my mind on entering a house devoted to the culture of Auriculas entirely in the gardens of Clive Cookson, Esq., at Nether Warden, Hexham, Northumberland. There were hundreds of plants in flower, from the classic Fancies to the humble seedlings of the alpine section, and even included plants of the original Primula Auricula.

The cool, moist conditions of the atmosphere in the north was stated years ago to be specially suited to these plants, but whether such is the case or not, I have never seen larger flowers, so finely developed in colour, or of greater substance, than were seen on the occasion of my visit.

Of the show section, I noted plants with large trusses of such varieties as Dr. Kidd, Splendour, Green Lady, Lorna Doon, Scarlet King, Royal Purple, Dusky Queen, Sapphire, Bookham Blue, Yellow Sunflower and White Star.

The members of the alpine section were even more worthy of note. Fine specimens of the old favourites, such as Argus, Dazzle, Gala, Vanity, Majestic, J. T. Bennett Poë, still hold their own with up-to-date varieties, such as Bookham Pride, Queen Mary and June Douglas, which were also finely in flower. Large batches of seedlings were also in bloom.

Mr. Cookson and his able gardener, Mr. W. J. Stables, are very enthusiastic hybridists with other plants, and they are now raising some of these beautiful florists' flowers. They have obtained some remarkable seedlings, not yet named. When their enthusiastic owner feels disposed to exhibit them they will, I feel sure, meet with widespread appreciation. *H. J. C.*

SOME INTERESTING SHRUBS AT CANNIZARO.

A FINE collection of shrubs is well-grown and cared for in the gardens of Cannizaro, Wimbledon, the residence of E. H. Wilson, Esq. The spacious gardens cover many acres, and their most attractive features are the wild garden and the shrub border.

The extensive kitchen garden and the glasshouses are divided from the pleasure grounds by a large wall, against which are growing several species of Ceanothus, which seem to have found ideal conditions, for some are ten feet or more tall, and are all flowering freely. Three species are outstanding—Ceanothus papillosus, C. thyrsiflorus and C. dentatus. Of these, C. papillosus, the most vigorous, is a species with small, rough, shining-green leaves which are somewhat viscid in the spring. It is of very rapid growth and well worth planting against a south wall.

One of the houses is set aside for the cultivation of difficult or half-hardy shrubs in pots, and here a strong, sweet scent, as of Lilies filled the air, but as no Lilies were apparent, it did not take long to trace the source of this perfume to Rhododendron fragrantissima, some three or four feet high, bearing loose heads of large, white flowers. The incident reminded me of entering an alpine house some years ago and smelling a perfume like that of Sweet Peas, which I traced to Primula Wardii. The house contains many new and rare Rhododendrons, some of them raised from seeds. In one corner stood splendid specimens of Magnolia Fraseri and M. macrophylla, both of which have very large and handsome leaves, and are well worth growing for their foliage only. A good plant of M. Wilsonii was also noticed. Nandina domestica, although not in flower, was beautiful with its red-tinted leaves, while Veronica Hulkeana decorated another corner of the house with its long spikes of lilac-coloured flowers.

The wild garden provides a feast of good things. Here is a large and varied collection of Camellias, Magnolias and Rhododendrons. By far the most conspicuous among the Camellias was the semi-double, pink variety, Lady Clare, which received an Award of Merit from the Royal Horticultural Society so recently as April 5 last, when it was exhibited by Lionel de Rothschild, Esq. The specimen at Cannizaro was full of flowers at the time of my visit with many buds to open. The rose-coloured Camellia Nagusaki, with double flowers; the deep rose C. Donckelaari, and the white C. japonica, were other noticeable Camellias in flower.

A recent introduction among the dwarf Rhododendrons was in full flower; this is unnamed and carried the number 15,356, Forrest. It is of the R. hippophaeoides type, and very much resembles that charming species with its small leaves and tiny heads of lilac-coloured flowers. Another dwarf species which was making a grand display was the delicate pink and white R. racemosum. The white-flowered R. Dr. Stocker showed up well against a background of darker foliage while the dwarfer R. ciliatum was equally attractive, and seems to have found a congenial home in the wild garden at Cannizaro.

Rhododendron Gauntlettii × R. Thomsonii is a large, early-flowering variety, very like R. Cornish Cross; R. Fortunei × R. Thomsonii, with large, rose-pink flowers, is another early-flowering hybrid making a good display.

These gardens contain a very representative collection of Ericas. Tall bushes of the white-flowered Erica Veitchii were very fragrant in the afternoon sun, while the coloured flowers of E. australis, close at hand, were evidently favourites with the bees. The dwarfer E. carnea and its white variety were almost over, having flowered nearly all the winter.

Among other dwarf shrubs I was glad to see Viburnum Carlesii and Osmanthus Delavayi growing finely in close proximity. The sweet scent of Viburnum Carlesii filled the air for some distance. Many flowering Plums, Cherries and Peaches are included in the Cannizaro collection, and one of the most beautiful I saw was Prunus serrulata Hizakawobeni, a double, rose-coloured Plum. During the latter part of May and the early part of June, flowering shrubs provide a wealth of colour at Cannizaro. *A. Donald Blaxill.*

THE WORTH OF HYBRID RHODODENDRONS.

WHATEVER arguments the purist may advance against hybrid Rhododendrons, as contrasted with species, he cannot object to them on the ground of garden value. That they have in abundance; and it is in years like 1926 and 1927 that this fact is brought home to one. In normal years the Himalayan and Chinese species give good value, and few will be found to deny that, plant for plant, they beat the hybrids in colour, vigour and grace. Then comes a May frost, following a heavy flower crop, as happened last year. The young growths are killed, and in the following year there is hardly a bloom to be seen; such flowers as there are receive their final quietus in an April frost!

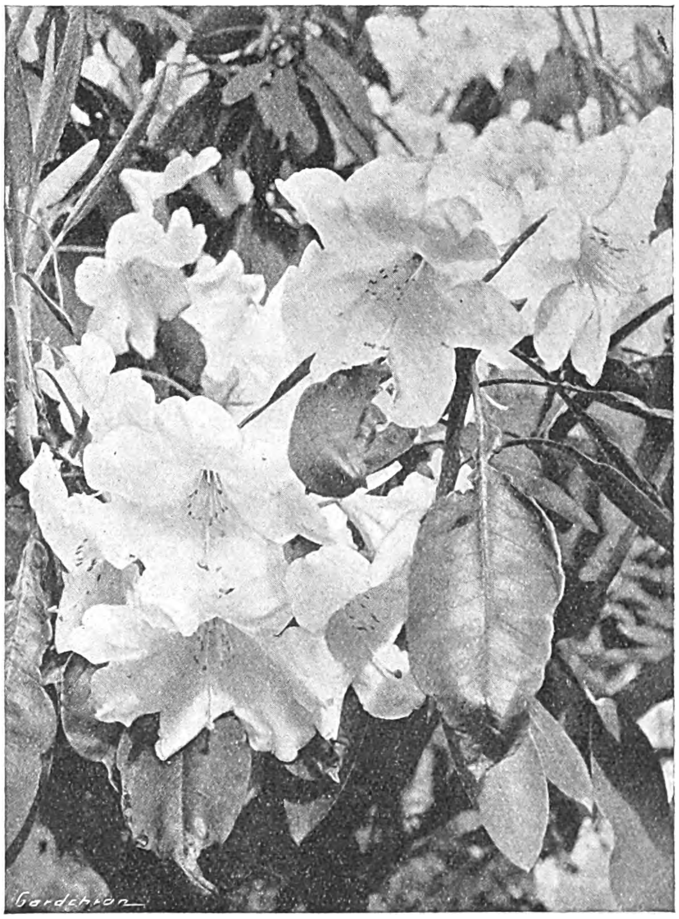


FIG. 198.—RHODODENDRON LODERI VAR. KING GEORGE.

But the best hybrids are supremely indifferent to all these alarums and excursions. They were in full bloom late in May and had been beautiful for three weeks. When the recent April frost was cutting the species down right and left, the hybrids were untouched, for the buds were still tightly closed; when the May frost of last year was spoiling all prospect of flowers this year by ruining the young growths, the hybrids lay low and said nothing, and this year responded with a heavier flower crop than ever! And the secret of that is, that their new growths develop late in the spring.

And so, as far as Rhododendrons are concerned, it has been left to the hybrids to cover the nakedness of the land this year, and right well have they done it; one trembles to think what the Rhododendron Society's second show would have been like but for the material supplied by despised hybrids. Meanwhile, those who enjoy colour should look at the beds of Rhododendron, such as Cynthia, planted in the parks, or take a walk through the Rhododendron Dell at Kew.

Amongst notable hybrids in the latter place are the following:—Alice, flowers pure pink; Michael Waterer, flowers crimson, with black spots; Mrs. Anthony Waterer, pink in bud, opening white, with a large brownish yellow mottled patch; Purity, white, with a small yellow patch, very fragrant; Edith A. Boulton, pink; The Queen, pale purplish pink with a yellow blotch; Victoria, magenta with darker spots; a very showy variety; Sigismund Rucker, deep crimson with large black splash; Charles Dickens, cherry-red; Nevaticum, pink, with a few well defined darker spots; Lord Palmerston, like the last, but bigger flowers in finer trusses; King of the Purples, a deep rich colour recalling that of R. niveum, with dusky spots; Catawbiense fastuosum flore pleno, which looks surprisingly blue against the reds and purples; Doncaster, scarlet; Mrs. F. Hankey, cherry-crimson; and Gauntlettii, white suffused pink; magnificent flowers in large, loose trusses.

The majority of those mentioned are large bushes, and most of them make a wonderful display; by the time these are over others will be flowering. It may fairly be objected that many of these hybrids are in bad taste as regards colour; the rawest magentas, purples and crimsons flaunt their colours side by side, and no attempt whatever has been made to keep them apart and restore harmony. But of their powerful effect there can be no two opinions, and it is clear they will carry us on far into June.

Rhododendron Loderi var. King George (Fig. 198) is a magnificent garden plant.

It may well be that China, for all the hundreds of Rhododendrons she has sent us, will, in the long run, when the time comes to assess her gifts fairly, to weigh the pros. and cons., and pronounce final judgment, be chiefly remembered for her contribution of dwarf species. *F. K. W.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden W.C. 2

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER, *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Local News. -*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc. but they cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand: or by telephone, to Gerrard,* 1543.

A DAY ON A SUGAR ESTATE.

THE sugar estates of British Guiana are situated on the flat plain of marine alluvium that occurs along the coast and for a short distance up the larger rivers. The largest estate is the Diamond plantation, on the Demerara river; this is some seven thousand acres in extent, and produces about 15,000 tons of sugar annually. It was my good fortune to be able to spend a day on this estate during a recent visit.

Owing to their low levels, a large proportion of the Sugar cane lands are below high-tide mark, hence, in places, extensive sea-dams have to be maintained. The estate is laid out in more or less regular rectangles, intersected by numerous canals which serve alike for transport, drainage and irrigation. The land generally is of a very heavy, clayey nature, and necessitates the opening of narrow cross drains at frequent intervals on an elaborate system. In the rainy season drainage has to be maintained by pumping the water from these drains into the larger canals, which discharge into the sea or river at low-tide.

As may be readily understood, the tillage of these lands under such conditions is a big problem, and although on the Diamond plantation both manual and mechanical tillage are practised with success, power tillage is fast gaining ground. Several types of tractor ploughs are in use (Fig 199), but tremendous strength is necessary to withstand the conditions, and the Fowler steam-cable plough appears at present to be the most efficacious. In this direction, it may be noted that the introduction and increase of mechanical tillage is seriously affecting the supply of suitable manure, which has never been over abundant. The constant use of sulphate of ammonia has also so altered both the mechanical and chemical condition of the soil that planters are being forced to reconsider their methods of manuring, and empty Adco drums are now familiar objects on many of the sugar estates.

The growth of Sugar-cane is more or less continuous throughout the year, but cutting and grinding must necessarily take place during the dry seasons, namely, early spring and late summer, consequently tillage for new plantations takes place so soon as the final crop of an established quarter is harvested, and replanting is carried out so soon as practicable. The first crop after planting is generally the heaviest, but an estate is usually divided so that at least three and sometimes four crops are reaped from one planting, thus dividing the tillage work into three-year or four-year periods. The greater part of the field work, generally, is done by hand, the canes being weeded, thrashed, cut and carried from the fields to the punts for transport to the factory by hand, hence the success of the industry is dependent on a plentiful supply of labour. All the transport is by water, the canes being carried in large, metal-lined punts from the various parts of the estate, along the canal to the factory (Fig. 201).

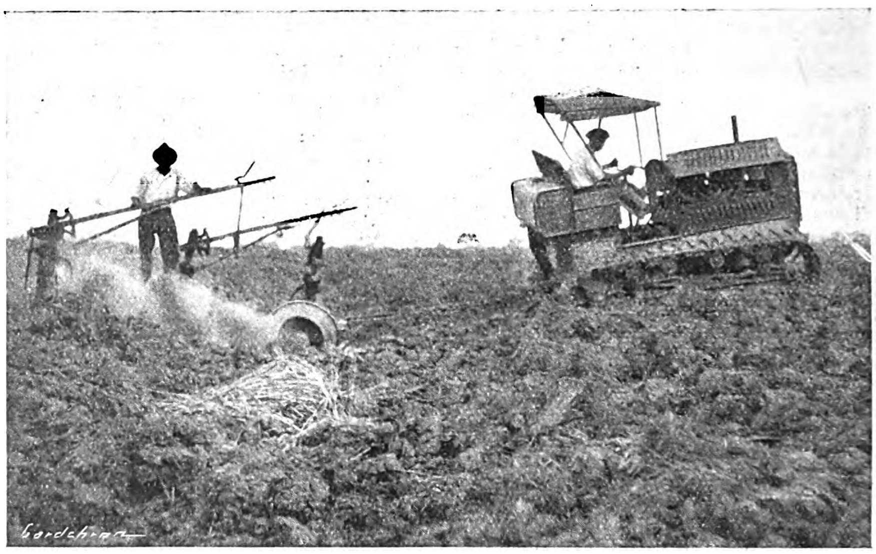


FIG. 199.—MECHANICAL TILLAGE ON A SUGAR ESTATE IN BRITISH GUIANA.

On arrival at the factory the punts are unloaded on to a conveyor which takes the canes to the first rollers of the train of mills. On the way they pass under revolving knives which level them up, and the rate of feed to the first rollers is regulated by a clutch which can stop the conveyor. The first pair of rollers is deeply grooved and crushes the canes so as to give a regular feed to the next rollers, the rest of which are in sets of three, so arranged that each succeeding set gives increased pressure to the cane.

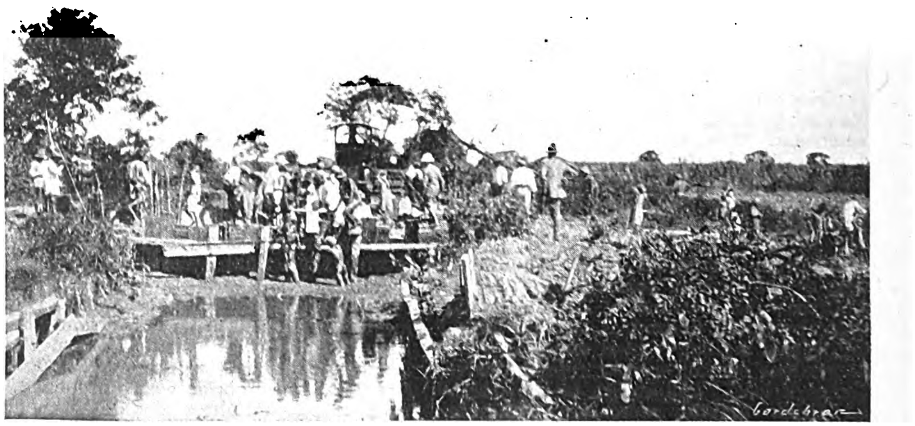


FIG. 200.—MOVING A TRACTOR OVER A CANAL.

From the first pair of "chewing" rollers the cane is passed on to the next set of three fixed triangularly, going in between the feed roller and the top roller and then out between the top roller and the delivery roller; when leaving these, water is sprayed on the crushed cane, and again, as it passes the last set of three rollers. A conveyor then takes the finally crushed sugarless cane, now called "megass," to the boiler where so much as is required for feeding the furnace is conducted down a chute into the fire-box. The remainder is dumped on the ground and is used for littering cattle pens, and through this means helps to supply the manure applied to land in the preparation of new plantations.

The cane juice from the mills is pumped through heaters and passes to tanks or clarifiers. At the time of my visit, syrup was being manufactured from the juice; therefore the juice was only heated to boiling point to cause the impurities to settle or rise to the surface. After this is done the clear juice is drawn away and passes through very fine gauze to what is called the "triple effect," in which it is concentrated to a certain extent in vacuum. From here it is pumped to the eliminators, where it is boiled and any impurities that rise to the surface are skimmed off, and thence to the vacuum pans, where it is further concentrated. From the vacuum pans it is conveyed to open pans heated by steam, where the final concentration takes place to the desired density. Some syrup is boiled to a density of 41 Baume; the one I saw being manufactured was a special kind, boiled to a density of 43 Baume. From the open pans the syrup is pumped through an apparatus cooled by water, in which it is cooled rapidly, and then it passes to the storage tanks to be filled into puncheons, made of Oak or hardwood, of a capacity of 110 wine gallons, in which it is shipped to Canada and Newfoundland. About 8,000,000 wine gallons of syrup are shipped every year to the above countries where it is used in various ways. It is used as food chiefly by the fishermen, farmers and lumbermen, and is very nutritious and beneficial, practically eliminating the necessity of aperients. It is the pure product of cane juice, not sulphured to produce colour, and has no chemical added to it. Its colour is darker than that of golden syrup, but the flavour is better, and it is a pity it is not known in England. The syrup I saw being made was sold at 1s. 3d. per wine gallon to the shipper, plus the cost of the puncheon, which was 26s.

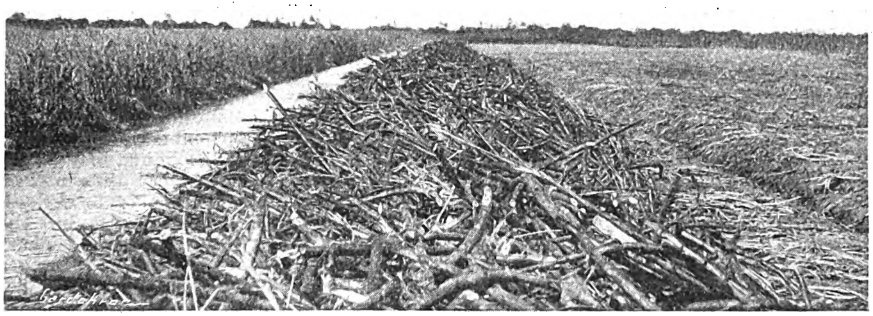


FIG. 201.—BARGE LOADED WITH SUGAR CANE FOR TRANSPORT TO THE FACTORY.

When making sugar, the juice is heated in the clarifiers and lime is added. The clear liquor then goes through the same process as for syrup until it reaches the vacuum pans, where it is boiled into sugar grain under pressure. The semi-solid mass then goes to centrifugal machines in which the molasses is separated from the sugar. All the settling from the juice in the clarifiers is again heated and goes to the filter presses; the clear juice from this being mixed with that of the first extraction and the "mud" is thrown in on the pens, where animals eat it. The sugar manufactured is of three classes, the greater bulk being the ordinary vacuum-pan crystals for the Canadian and American markets, but some estates make the well-known Demerara crystals for the English market, and a comparatively small quantity of white sugar is also made.

It will be noted that nothing is lost in the manufacture of sugar from cane, and the only part of the refuse fibre which is lost to the soil is that which is burned for raising steam. Most of the concentration of the juice is done in vacuo, only the exhaust steam from the engines, etc., is used; otherwise it would be impossible to raise enough steam from the "megass," and some other kind of fuel would have to be imported. I understand that it is the ambition of all factory engineers to fix the furnaces to the boilers so as to economise in the use of "megass" so much as possible and thus retain it for conversion into manure for the benefit of future crops.

Previous to and during the great war the industry was considerably helped by the value of rum, which is produced from the molasses after its separation from the sugar, but during the last few years the decrease in the demand for rum has considerably affected the financial position of the growers. A certain amount of rum is still made, however, and as I was able to see the process, a few notes on it may be of interest. For this purpose molasses and water are mixed by conducting the two into large vessels, where it is thoroughly mixed by agitation as it passes in. This liquor is then conducted to large, open vats, where it is allowed to ferment for a period of thirty-six hours. It is then conducted to the stills, the final liquor being a colourless liquid containing about forty per cent. of alcohol. The colouring is done by adding burnt sugar caramel, the depth of colour attained being governed by the demands of the various markets. Molasses and Molascuit, a cattle food, two other by products, are also exported to a large extent, and a considerable quantity of industrial alcohol is produced which is used to drive machinery on the estates. *W. Auton.*

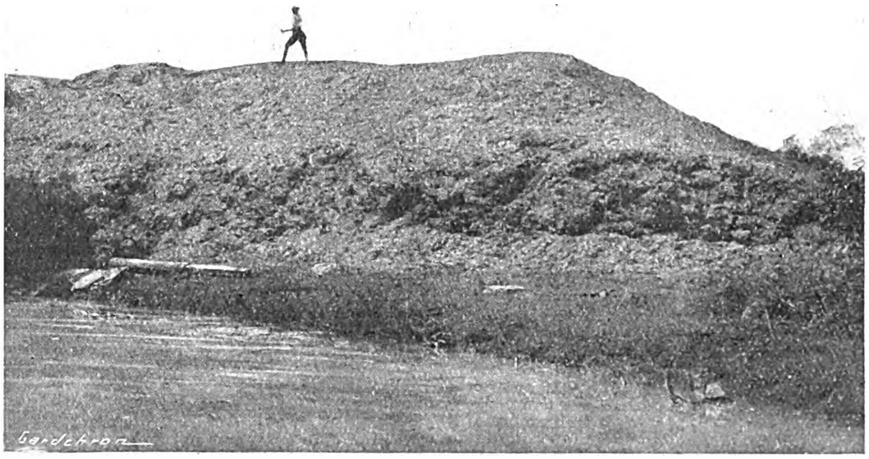


FIG. 202.—HEAPS OF SURPLUS "MEGASS" OUTSIDE A SUGAR FACTORY.

ECONOMIC PLANTS OF THE BAY ISLANDS (HONDURAS).

(*Concluded from p.* 305.)

THE Vanilla (Vanilla planifolia) is a climbing Orchid found in the shady forest, but it is never cultivated in the Bay Islands. The pods, or beans, are collected a little before maturity and dried, when they become brownish in colour. They are used to flavour candies, guaro (rum) and Tobacco.

The Lemon Grass, Fever Grass or Zacate de Limón (Andropogon Nardus, L.) is a small, cultivated grass, generally called "tea," as in the Bay Islands it is exclusively used to make tea; it has a pleasant, Lemon-like scent. Its home is East India, where oil is extracted from the leaves and stem.

The Madre Cacao or Madera negra (Erythrina sp. or Gliricidia maculata, H. B. K.) is a small, Leguminous tree, with very pretty pink flowers. It is easily propagated from cuttings, and therefore is often used to make living fences. It furnishes a good quality of cabinet wood; the bark ground and mixed with Maize, is used by the Ladinos as rat poison. On the mainland this tree is planted in Cacao plantations as a shade tree, hence the name Madre de Cacao (Mother of the Cacao).

The Red Mangrove or Mangle Colorado (Rhizophora Mangle) abounds around the tidal swamps, and at the borders of the lagoons. This tree does not reach such a great size as the white or the black Mangrove. The stem begins at a distance of five feet to six feet from the ground, being supported by numerous air roots which form an impenetrable jungle. The red dye contained in the bark turns the water in the "Manglares" a dirty, red colour. Locally, the wood is used in boat-building and in making hogsheads, and occasionally in making violin bows and walking sticks. The bark is used for tanning and dyeing.

The Black Mangrove or Mangle Negro (Avicennia nitida) is a fairly tall tree with black bark, found in the lowlands close to the sea-shore. It is often used for house-posts, which last a long time in the damp soil.

The White Mangrove, or Mangle Blanco (Avicennia officinalis, syn. A. tomentosa) is a fairly straight, tall tree, with grey bark and tomentose leaves. The wood is not so durable as that of the red and the black Mangrove; it is, however, esteemed as firewood.

Mahoe, Majao and Majagua are names applied in Central America and the West Indies to several species of Thespesia, Paritium and Hibiscus.

The Mahoe of the Bay Islands (Thespesia sp.) is a small tree found only around brackish water. It has heart-shaped leaves, and pointed, large, pretty yellow flowers, which turn purple in colour when about to fall off. The strong bast fibre of this plant is not extracted.

Contrayerva (from Spanish *contrayerba*) and Guaco are the names applied to several twining vines of Dorstenia, Aristolochia and Willughbaeya (Mikania), the aromatic, bitter roots and leaves of which are used locally as a remedy for intermittent fever, rheumatism, dyspepsia, asthma, cancer, syphilis, cholera, etc. They are also reputed to be an efficient blood tonic and an active diaphoretic, stomachic, diuretic and vermifuge. The remedy is administered in the shape of infusions of the mashed leaves or decoctions of the boiled roots. Cases of fish poisoning, which occur rather frequently at certain times of the year, are efficiently cured by this remedy.

On the neighbouring mainland of Central America, Guaco and Contrayerva are the most common remedies used in the case of snake bites. A very strong infusion is given to the sick person every hour, gradually decreasing the dose. In order to increase the effect, the infusion is heated before administering, but care must be taken not to overheat it, otherwise all its volatile principle will evaporate. Hot poultices of the heated stem and leaves are also laid upon the wound.

Some of the bushmen preserve the mashed plant in rum and carry a small bottle of this tincture with them when travelling in the bush; others claim to make themselves immune from snake bite by chewing from time to time a little of the leaves. The "snake charmers" render themselves immune by making a small incision in their flesh, in which they pour a few drops of the juice of the Guaco. *Edouard Conzemius, 33, Boulevard des Batignolles, Paris.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM ACOMB.

This most desirable hybrid, which is the result of intercrossing C. Carola and C. Memoria F. M. Ogilvie, is one of the many fine seedlings recently flowered in the collection of Clive Cookson, Esq., Nether Warden, Hexham. The dorsal sepal is three-and-a-quarter inches broad and holds itself in perfect form; the upper two-thirds is heavily line-spotted with rich purple, and there is a broad band of purple from the base to the apex; the basal third is greenish-yellow blotched with brown-purple. The petals are five-and-a-half inches across the flower; they are two-and-a-quarter inches broad; the upper halves of the petals are rich brown-purple, mottled and margined with yellow, the basal halves yellow with suffused brown markings. The lip is greenish-yellow, suffused in front with brown-purple. This hybrid is a fitting companion to the many fine Cypripediums in the Nether Warden collection.

ORCHIS FOLIOSA.

The Maderian Orchis is one of the finest of hardy Orchids and rarely fails to provide a handsome display of bloom at this season. The inflorescences attain a height of from one foot to two feet or even more. The plant is well furnished with foliage leaves from one inch to two inches long, surmounted by fine spikes of rosy-purple flowers.

The plant is suitable for growing in a bog or a shady nook; it needs abundant moisture at the roots and a good depth of rich soil. It should, however, be remembered that, like all other members of the Orchideae, the plant is impatient of root disturbance or removal of any description.

An excellent plan is to allow the ripe seed-capsules to disperse their seeds over the whole area naturally, resulting in a goodly crop of plants in the near future. *T. D. Boyd, 6, Clarence Road, Kew Gardens.*

A REVISION OF VIOLAS.

(Continued from p. 357.)

V. chelmea, Boissier and Heldreich, is a woody-rooted species, thereby differing from the palustris Violas. It is extremely rare, having been found only on the higher rocks of Mount Chelmos in Greece, and on Mount Velez, in Montenegro. The flowers are lilac, with whitish centres; and, unlike V. palustris, the plant throws no stolons.

V. Clementiana, Boissier, is identified by Farrer with V. grandiflora, Grisebach, but the latter is in reality synonymous with V. Zoysii. In some respects V. Clementiana approaches V. altaica, and in others V. Zoysii, and thus may be regarded as intermediate between the calcarata and altaica groups. It is an exceedingly dwarf plant, not exceeding three inches high; is densely leafy and bears one conspicuous yellow flower on each stem. Boissier gave its home as Macedonia (whence, apparently, the reference to Scardus in Farrer), but it is known authentically only from Mt. Olympus, near Brussa in Asia Minor (the classical locality of the true V. gracilis), where it grows on rocks near the summit, at about 8,100 feet, among the snow.

V. Comollia, Messara, requires to be re-discovered. It is very close to the typical V. cenisia. As to its cultivation, little or nothing is known. M. Correvon, I understand, once had it, but has lost it. M. Correvon declared it to be the most wonderful of the Violets; and it is reputed to be the most fragrant. This gentleman told me, a year ago, that he intended to collect V. Comollia yet again; but even a much younger man might have qualms about the long expedition involved. V. Comollia grows only in a comparatively restricted area in the Bergamask (or Orobian) Alps, which run eastwards of the Lake of Como; its centre is the mountain called La Redorta, and it inhabits rocks at about 8,000 feet. It may be of interest to possible collectors to quote here a summary of the route given by Mr. Douglas Freshfield, quondam President of the Alpine Club, written so far as I remember, in the 'eighties—going up from the Valtellina side, near Sondrio: "Another steep ascent . . . leads to the last Alp. Above this the glen is mostly stones and the scenery is extremely savage. . . Our local guide led us to a broken-down path which climbed very steeply among avalanche debris. . . . The crest can be gained by climbing a long, dull, snowy trough. On the broken crags near its head, V. Comollia was growing profusely." The varying descriptions of the colour of the flowers throw doubt on them all. Becker describes it as pale purple or yellow, with an orange or yellow centre; Correvon describes it as bright rose with a yellowish green reverse to the petals; Farrer has it as "flaming vinous rose, more rich than even in V. bosniaca, with the same opaque reverse of nankeen yellow to the petals"; Mr. Freshfield describes it as just "bright mauve." The only point on which everybody seems to be agreed is that V. Comollia is *par excellence* worthy of re-discovery.

V. conspersa, Reichenbach, and V. labradorica, Schrank, are both Wood Violets, akin to V. sylvestris, and often confused one with another. The *Kew Hand List* gives V. labradorica as synonymous with V. canina var. Muehlenbergii, whereas the latter is in reality V. conspersa. V. labradorica is alpine, coming from Greenland and Labrador and so far south as the mountains of New York State. V. conspersa is lowland and southern, extending from Quebec to the mountains of Georgia. The former is dwarfer, has the leaves slightly hairy on the upper surface, a less branching root, quite obtuse leaves, stipules entire, deep violet flowers, and blooms in July and August. V. conspersa on the other hand is rather taller, is quite glabrous, has a much-branched root, the upper leaves almost acuminate, the stipules longly fringed, pale violet flowers, and blooms from April into May. Farrer calls it a "long-armed" plant, by which phrase I imagine he refers to the long fimbriations of the stipules, giving them a bristly appearance.

V. corsica, Rouy and Foucauld, is synonymous with V. Bertolonii; it is very distinct from V. calcarata.

V. cretica, Boissier and Heldreich, is a Cretan form of V. Dehnhardtii, Tenore, which is itself a variety of V. alba, Besser, this last, in turn, being a near relative of V. odorata, the Sweet Violet. It is not, therefore, a bog Violet like palustris?

V. cucullata, Aiton, common in cultivation, is not confined to the New England States, but is one of the most widespread of American Violets, from north to south throughout the eastern U.S.A. This, the Hooded Violet, takes its name from the inverted, cowl-shaped form of the young leaves. In summer, after flowering, the leaves become very broad, and the whole plant becomes a very leafy clump which (as in the case of many Violets) might give a wrong impression of the character of the plant, were not such an impression corrected by knowledge of the early spring state at flowering time.

V. Curtisii, Forster and V. sabulosa, Bor., are both seashore forms of V. tricolor (V. tricolor, sb-sp. genuina var. maritima, Schweigg.).

V. declinata, W. and K., is by Farrer made synonymous with V. Dubyana. This is an error originating with Gaudin in the *Flora helvetica*, repeated by Reichenbach and Caruel. V. declinata is a Viola belonging, like V. Dubyana, to the lutea group, but very different in appearance from V. Dubyana. It used to be associated with V. elegantula (V. bosniaca), but the latter is now classed with the gracilis Violas. It is a tall plant, from six to sixteen inches, with rather large, blue flowers, long in shape rather than round, the two upper petals overlapping and much larger than the lateral, and held well away from and above the lateral, while the lateral and lowermost are huddled together, thus giving the bloom its elongated, startled look, not unlike the bloom of V. Dubyana. It hails from Transylvania, Hungary and Galicia, whereas V. elegantula comes from the mountains of the eastern Adriatic, and V. Dubyana comes from the Bergamasks and the Garda Hills. V. declinata may be obtained true from several English nurseries.

V. delphinifolia is simply Nuttall's name for V. pedatifida, Don. Farrer treated them as two distinct species.

V. dichroa, Boissier and Huet, belongs to the altaica group; it is very dwarf, however, from near the snows at about 10,000 feet, with comparatively large flowers of violet or reddish-violet, and longish spur.

V. dissecta was Ledebourg's name for what is now placed as the variety multifida of V. pinnata. It is, in short, the Siberian form of the European V. pinnata. Whether it is easier to grow than its European cousin, which appears and disappears from catalogues, remains to be seen. It is only the divided-leaf form which relates it to V. pedata, with which it has no other botanical affinity.

V. Dubyana, Burnat, is, to my mind, one of the most beautiful of all Violas. Plate 47 in *The English Rock Garden* is an excellent portrait, showing the lowermost petal drawn away from the others, which are staringly erect. I imagine that Farrer did not see this Viola in bloom on the Tombea; his expedition to the Tombea was at a time when Primula spectabilis was at the acme of its blossom, which would be in early June, whereas V. Dubyana does not flower till the end of June. Otherwise he would not have associated it with V. valderia or V. cenisia, from which it is very distinct in habit. It is now classed among the lutea Violas, a fact which, I imagine, accounts for its easier cultivation, despite the fact that it is extremely hard to come by. I do not know of any English grower. On the Tombea there are two distinct colour forms—one violet, the other claret-purple. It flowers on the sunny side of the mountain, in company with Linum austriacum, and, like it, may not be altogether resistant to our raw winters. It is not confined to the out-of-the-way Tombea, but is widespread over the Garda Alps and the Bergamasks, being, perhaps, more accessible on either the Alp Gaverdina near Tione in the Val Judicaria, or on the Grigna above the lake of Como, near the Rifugio Escussionisti Milanese. As there is abundance of it in its native homes, I hope it may be collected and permanently introduced into English gardens. *E. Enever Todd, Lt.-Col.*

EELWORM DISEASE OF CHRYSANTHEMUMS.

During the past few years there has appeared amongst Chrysanthemums a peculiar disease. The leaves, at first sight, appear to be suffering from an attack of rust, but examination showed that the brownish tinge, which was yellowish at first, was not regular, but in patches which increased in size, causing the leaves to shrivel up as if from extreme drought. This was particularly the case with some of the early-flowering varieties, such as Mrs. Marshall Field, Roi de Blanc and Sanctity. The plants lost vigour and gradually deteriorated as time went on. It was assumed that these varieties, like many other garden plants, had become soil-sick, or that the local climatic conditions were unsuitable and a change of stock was recommended.

The trouble became more serious, however, when the same symptoms showed on the later-flowering varieties, particularly Percy A. Dove, Advance, Romance and H. W. Thorpe. Various spray fluids were used with but little effect. Cuttings for propagation were selected with the greatest care, but in time the young plants became affected. The growth was spindly, and the flowers, if any, were usually deformed, or of mediocre value. It was quite evident, therefore, that if this pest were not thoroughly investigated, and preventive and remedial measures found, the future of this very valuable winter flower would be in dire jeopardy.

Symptoms of the Disease.

In affected stock the leaves of the basal shoots are distorted and narrow, and in many the lobes are absent. In severe cases the points of the shoots become blind, ending with only a pointed petiole, as is characteristic in eelworm-infested Strawberry plants. Normal cuttings, when rooted, may become affected at the growing point, and the young plants in their struggle to make growth, produce lateral shoots as illustrated (Fig. 203). Others tend to throw up basal shoots, while Source d'Or and Tom Page make quite a distinct proliferation of basal buds, not unlike Cauliflower-disease in Strawberry plants. The leaves assume a blotched, yellowish-brown appearance, and this colour eventually spreads over the whole surface, presenting a scorched appearance. Throughout the whole season affected plants make but spindly growth, and many of the growing points become blind.

Investigation and Remedial Measures.

Plants and soil were in the first instance submitted to Dr. Eales, of the Zoology Department, University of Reading, who reported that eelworms (probably Aphelenchus Retzema-Bosi) were found in the leaves, roots and soil. Later on, affected young plants were sent to Dr. Percival, M.A., who reported that he found eelworms in numbers in practically every leaf, and advised the sterilisation of all soil used as a potting compost. In our case this was practically impossible as the young plants were then in four-inch pots.

It was then found—thanks to Mr. F. H. Stewart*—that this particular eelworm, unlike practically all others of its kind, moved upwards from the soil, on the outside of the stem, on a thin film of moisture, and found entrance to the leaf through the stoma openings. That being so, it was essential that all unnecessary spraying should be avoided. The only practical method of dealing with large batches of young plants is to soak them thoroughly periodically through a rosed watering-pot. To prevent this pest from ascending, it was quite evident each soaking must be followed by spraying with a fluid that would effectually destroy the pest without killing the plants.

Batches of affected plants of the variety Tom Page were set aside and the following sprays were used, the first three being in powder form: (a) Newly-slaked lime; (b) flowers of sulphur; (c) lime and sulphur; (d) lime sulphur, one in twelve; (e) a soft soap solution and half-an-ounce of nicotine to five gallons of water; and finally, to kill or cure (f.) half-an-ounce of nicotine to one gallon of water. It is astonishing that the plants survived that strength of nicotine (95 per cent. purity), and which apparently sterilised the soil so that the plants are now in perfect health.

It is quite unnecessary to comment on the other sprays, except to note that lime sulphur (one in twelve) scorched the young leaves but did not kill the growing point, otherwise this was quite a good spray, and the plants, after three sprayings, have grown away quite healthily. The nicotine spray was applied, twice weekly, for about three weeks, by which time the plants were making perfectly normal growth. The spraying was then discontinued. Commercially, the four-inch pot plant is transferred to pots of nine-inch or ten-inch size. Preparations are being made for that now, and when completed the plants will be sprayed a few times to make certain that the pest has not been reintroduced in the potting compost.

It would be premature, at this stage, to state that a positive cure had been found. But our Chrysanthemums have been, for some years, affected by this pest, and they are now a very healthy lot. This, I believe, is due to spraying the plants periodically with nicotine.

Preventive Measures.

It is quite evident that this Nematode has a resting stage, or can exist for long periods in the soil, which it reaches during rains or in fallen leaves. Therefore, in taking cuttings from the stock plants, preference should be given to those that are six inches or more in length, propagating the top three inches only. For should there be any eelworms in the soil, they will attack the lower leaves first, provided, of course, that there is no undue moisture about. Where practicable, sterilise all soil or sand used as a rooting-medium. Use virgin soil where possible. Basal leaves of a suspicious nature should be removed and burnt, not placed on the rubbish heap. Avoid all unnecessary sprayings if the plants show any symptoms of the disease. Give the plants at all times plenty of room, thereby building up sturdy growth, with clean, healthy foliage. The same rule should apply when the plants are housed in the autumn, when as dry an atmosphere as is practicable should be maintained by the use of a little artificial heat.

Immune Varieties.

I do not know of one variety that is absolutely immune to eelworms, but Favourite and Baldock's Crimson are certainly resistant; the same may be stated of Edith Cavell, Rosalind and Mrs. R. Luxford. The most susceptible are Percy A. Dove, Tom Page, H. W. Thorpe, Romance, Advance, Enfield White and Dr. Euguehard. *H. H. Cook, University of Reading.*

---

[*] F. H. Stewart, "The Anatomy and Biology of the Parasitic Aphelenchi." *Parasitology XIII.*

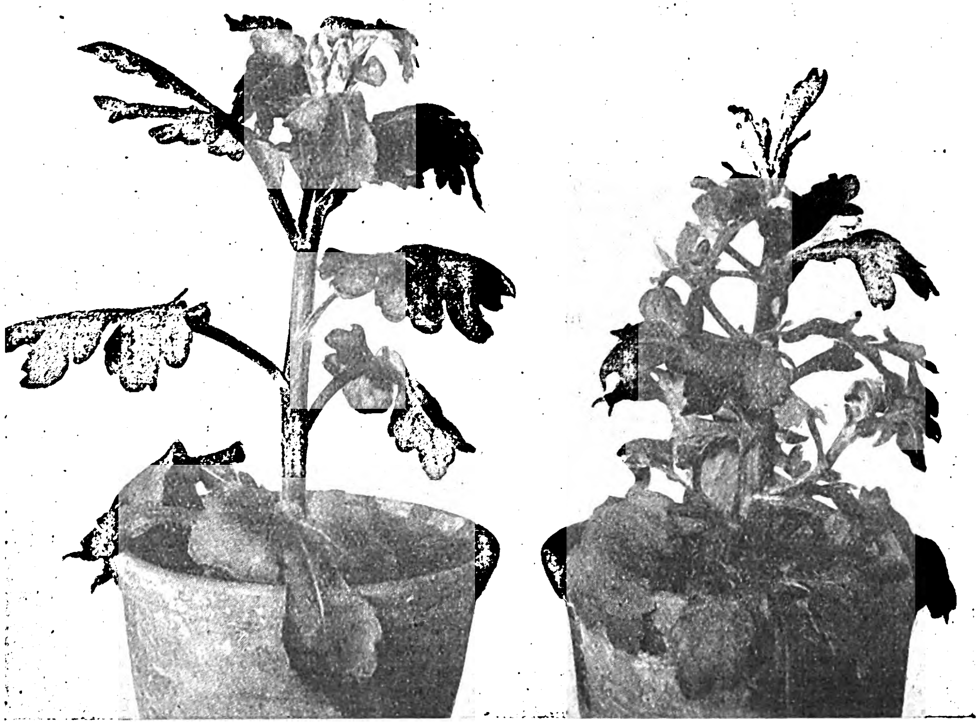


FIG. 203.—EELWORM DISEASE IN CHRYSANTHEMUMS.

THE GLADIOLUS.

Continued from p. 392.)

I often wonder why James Kelway was not honoured with the V.M.H. Born in 1815, he was throughout his long life a most devoted, original, practical and successful gardener. But I am not writing his life here. In 1889 his son, William Kelway, and his grandson paid Victor Lemoine a visit at Nancy, and brought home a new shade in Gladioli. It had purpureo-auratus blood in it, and was the colour of the burgundy which M. Lemoine produced, with several other wines, at luncheon. James Kelway objected to the Lemoinei blood being introduced, as the flowers were small and hooded; but eventually the pollen of this variety was used, and gave us some fresh shades of colour. I think James Kelway was prouder of the medal won for six hundred picked spikes arranged under the great organ at the Crystal Palace at the International Exhibition of 1871 than of any other honour. The Frenchmen used to come over to London, but I do not remember that they ever beat my grandfather. Their flowers were thought by us to be smaller than ours, and they certainly did not carry well under their system of packing. The Scotch were always to be feared as competitors late in the season. Gladioli do exceptionally well in North Britain, where they have always been popular.

There have been other raisers in England in very recent years, but my notes are of comparatively olden days. Mr. W. C. Bull, of Ramsgate, wrote me in 1912 as follows in reply to my enquiry:—"I have been working on Gladioli for the last twelve years, and raise some 50,000 seedlings year by year. The best of them are being grown on and propagated, but increase is very slow in my soil and climate here. I used to send up some of my best to the R.H.S.—three of these were given Awards of Merit. But I found that the opinion of the R.H.S. Committee differed so very much from mine as to the merits of a good Gladiolus that I have given it up, and hope to find the trials of the National Gladiolus Society a much more satisfactory test. I may say that I have concerned myself with trying to improve the constitution of the plant more than the colour, etc., and I think I can say that it has been successful to a small extent, but it takes a long time and trials of culture in different soil and sites before one can be very certain. We have a large number of varieties now in the yellows and pinks; the latter capable of standing the full glare of the sun without showing any magenta tint. I grow rather over an acre of Gladioli."

Messrs. Burrell, of Cambridge, at the same date, wrote me as follows:—"Our late Mr. John Burrell was a successful raiser of new Gladioli, and for many years annually sent out a set of new varieties, all hybrids of Gandavensis. He very much favoured those varieties that opened a spike of flowers at once; under ordinary good cultivation many of them would open twelve, fourteen and sixteen flowers at one time. Unfortunately, many of the best are lost to cultivation."

I cannot recollect who raised Brenchleyensis, so called, I believe, from Brenchley, in Surrey. It was, and still is, a very distinct kind. I find it offered in Kelway's price lists in the 1860's at 6d. each.

2.—Mr. William Bull, of Chelsea, introduced G. purpureo-auratus from South Africa, and Victor Lemoine in the 'eighties crossed it with Gandavensis hybrids, and brought about the Lemoinei type, noted for the very handsome and conspicuous blood-red and golden blotches on the lower petal. The upper petals are extremely hooded in form, and the flowers are of medium size, so that they are not by any means, although attractive, so showy as the large-flowered sections. The blooms are on longer slender stems, and two to four at most are open together. It is prolific, as it produces numerous cormlets, and it flowers some ten days earlier, and is looked upon as being rather more hardy than the Gandavensis section.

(3).—Nanceianus was the first hybrid of another section which we owe to Messrs. Lemoine. It originated from a cross between G. Saundersii and varieties of Lemoinei, and was first exhibited at the Paris Exposition Universelle of 1889. The flowers are large and broad, sometimes even six to seven inches across, and the lower portion bears the beautiful lacings, mottlings and splashes of G. Saundersii. The spike is comparatively short, a few flowers are open at once; it has not such a sturdy habit as Gandavensis, and like Lemoinei, the stems are usually slender.

(4).—The Kelwayi section is composed of crosses between Kelway's best Gandavensis hybrids and the finest of Nanceianus. This cross produced flowers of immense size with spikes of fair length, colouring of nearly every beautiful hue and some quite curious shades, also with the characteristic markings which show the G. Saundersii blood. They are by far the most attractive of all the really large-flowered kinds, and in time we shall probably obtain varieties with quite long spikes.

(5).—"The history of G. Childsii is rather confused. Many years ago Herr Max Leichtlin, of Baden, made a similar cross to that of Mr. Froebel, who raised G. turicensis, and sold the hybrids obtained to a French nurseryman, from whom they were purchased by an American firm, the stock of which afterwards went to Mr. Childs, of Floral Park, who gave them his name and pushed them successfully." (Philippe de Vilmorin). The cross was G. Saundersii × G. Gandavensis. Dr. Van Fleet, of Little Silver, New Jersey, U.S.A., raised princeps by crossing G. cruentus, a native of South Africa, with G. Childsii. It has a fine, open flower of splendid colour, and blooms very late, but only two or three flowers are open at a time on the short spikes. There are several well-known seedlings from this cross, and the class has been blended with Nanceianus, Childsii and Gandavensis, and has influenced them in the direction of blood-red colour, and openness of flower, although these qualities were present before. G. cruentus was first sent to William Bull, of Chelsea, by a Swiss living at Drakensburg, Natal, and Dr. Van Fleet made his first crossings in South Africa.

(6).—Although the largest, the most majestic, brilliantly coloured and strikingly marked, Gladioli belong, in my opinion, to the sections 1, 2 and 4 described above, yet without doubt the varieties by far the most elegant and graceful in outline are those raised from G. primulinus; and as to colouring, in their present initial stage of development they are perfectly delightful in the softness of their hues, to which may be applied those rather trite terms "artistic" and "aesthetic." They are, moreover, the most prolific of all Gladioli. These and the ease with which new seedlings can be produced are good reasons for their taking the world by storm. They are so prolific because the bulbils are borne on long stolons away from the corm and develop independently more readily than those tucked under the corm. As there has been some controversy as to their origin, I have endeavoured to collect what is known on this point, and to straighten out the tangle as fairly as I can. Mr. C. H. Wright, in the *Botanical Magazine*, t. 8,080, states that Gladiolus primulinus (species) "was discovered in the Usagara Mountains in 1887 by Mr. J. T. Last, who sent corms to Kew, where the flowers were first produced in 1890." *James Kelway.*

(*To be continued.*)

NOTICE OF BOOKS.

*The Field-Club Flora of the Lothians.

Edinburgh botanists have long been interested in their local flora, which they have now extended to embrace the three Lothians. This has been the means of greatly increasing the number of plants recorded in *A Catalogue of the Indigenous Phenogamic Plants Growing in the Neighbourhood of Edinburgh* (1824). The new list is by no means confined to indigenous plants, but includes an immense number of aliens, casuals and subjects known to have been planted, even to Ulmus glabra var. pendula in St. Andrew Square, to which U. glabra var. Camperdownii might have been added. The botanists have not lacked bravery in restoring Hudson's original name of U. glabra for the Scotch Elm (U. montana), for Hudson himself corrected the name in his second edition. On the whole the nomenclature is quite up-to-date, and possibly rather in front of the times, in such cases as Lathyrus tenuifolius, Heracleum angustifolium, Silene puberula, etc., which have been raised to the rank of species. The number of Mints has been raised from five to eleven, but only two of them are regarded as true natives. The name Mentha arvensis occurs twice in the list, but as M. sativa is given as a synonym of one of them there must be a clerical error in giving an * instead of a ×. Even this hybrid might have been regarded as native, for in one or other of its numerous forms it occurs so far north as Murray, at least. Linnaeus's name of M. verticillata might have been restored for this, seeing that he published it in 1759. It is interesting to note that such rare plants as Arenaria verna and Lychnis Viscaria still exist on Arthur's Seat, and the latter on the Castle rock as well. Dianthus deltoides still occurs in the King's Park, but D. deltoides var. glaucus has disappeared. The late Mr. John Laing received a medal for finding this variety. The value of the book to beginners is greatly enhanced by the ecological lists of the more important districts, the illustrations showing the various parts of a flower, the forms of inflorescences, rootstocks, leaves, venation, fruits, a copious and excellent glossary, an index of genera, and an excellent map of the three Lothians. The book is less bulky than Hayward's *Botanists' Pocket Book*, and though it lacks the descriptions of the latter, it should prove quite a useful publication to students and collectors.

BUYING PATENTED ARTICLES.

The presence of patented articles and other "gadgets" in seedsmen's and gardeners' catalogues seems to be steadily increasing, and although these often work the wonders they are scheduled to perform, it must be admitted that occasionally they fail to come up to their maker's description. In looking through a few such catalogues, I see special wonder-working hoses, patent mowing-machine accessories, etc.,; what remedies does the law give a buyer of these articles if they prove to be useless for the purpose for which they are purchased?

Caveat emptor, that is, let the buyer look after himself, is the general rule to be applied in cases in connection with the buying and selling of goods, but, as shown in former articles, to such a sweeping rule as this there are several exceptions. I have also shown that where the buyer makes known to the seller the use to which he is going to put the article, in such a way as to show that he relies on the latter's judgment, and the article is of a kind the seller supplies in the ordinary course of his business, then there is an implied condition that the article sold is fit for the purpose specified.

To this implied condition the statute excepts any article which is sold under a patent or trade name, when, it states, "there is no implied condition as to its fitness for any purpose." What is the meaning of this provision? Until a recent date, it was not quite certain what was the exact meaning of these words in the Sale of Goods Act of 1893. From recent case law, however, the point has been made clearer, and in addition these cases show that a sale under a patent or trade name is (for the purpose of the Act) a less frequent occurrence than one might without consideration imagine.

The position was summed up extraordinarily well in a recent case on the subject. The Judge divided the sale of articles under a patent or trade name into three classes; in some of these a condition as to fitness for a particular purpose would apply, in others—where it was a true sale of such an article for the purpose of the Act—no such condition could be applied.

The first case taken was where a buyer asks for an article which will fulfil a particular purpose, and in answer to his request the seller sells him an article by a well-known trade name; here the provision does not apply and the article must be fit for the purpose specified.

Secondly, there is the case where the buyer goes to the seller and says: "I have been recommended such and such an article, will it suit my particular purpose?" The buyer mentions an article by a patent or trade name, and states the purpose for which he requires it. If the shop-keeper sells him the article without more ado, again apparently the proviso does not apply; it is not a sale under a patent or trade name for the purpose of the Act.

And, thirdly, and lastly, where the buyer says to the seller: "I have been recommended so and so"—giving a patent or trade name—"as suitable for the particular purpose for which I want it. Please sell it to me." Here the proviso does apply, and should the article so purchased prove unsuitable, the buyer cannot complain. *Harold Sharman.*

VEGETABLE GARDEN.

FORCING SEAKALE.

I have been interested in the correspondence on the above subject. May I describe still another method of forcing Seakale?

I had a stage built over a Robin Hood boiler, about eighteen inches above it, and on this a box was made ten feet long, two feet six inches wide and two feet deep, with lids in two feet sections, all made to fit perfectly so as to exclude the light. About fifteen inches of old leaf-mould was placed in the box. In November, I inserted the first batch of crowns, making holes with a dibber, so that the sets were just clear of each other. The crowns were well watered and the covers placed in position. So soon as this batch started and the plants had grown about an inch or so, another batch was put in, in the same way as the first, and after the second had started, a third was inserted.

---

* *The Field-Club Flora of the Lothians*, by the Botanical Committee of the Edinburgh Natural History Society. Edited by Isa. H. Martin, M.A., F.L.S. William Blackwood and Sons, Ltd., Edinburgh and London, 1927. Price 5s. net.

When the first heads were all cut, the old roots were pulled up, and new crowns placed in the same soil, which is never changed, and watered in. Successional batches are placed in the forcing box right through the season, so that we always have Seakale ready for use, and some coming on from Christmas till the end of April, when we obtain a supply from the plants in the open, covered by old carbide tins.

There is still another method of forcing this plant. This last season I wanted Seakale in quantity. I dibbled the crowns in the soil of a border in a Melon house, watered them in and left them till next day before covering them. An important detail in this method is to have the soil dry on the top. Previous to this, I collected a quantity of Oak and Beech leaves and dried them on the boiler; it is very important to have the leaves dry. The Seakale crowns were covered with the leaves to a depth of eighteen inches; this thickness of leaves is necessary to exclude the light. As the Seakale head grows, it pushes its way amongst the dry leaves, and when cut is perfectly blanched.

I put 150 crowns in the first batch, and when the produce was cut, it weighed 50 lbs., and I sold the heads in the open market at 9d. per lb. I worked the crowns in batches of 150 all through the season, and had good results without much trouble. The leaves must be very dry, for if damp, they lie too closely and cause the Seakale shoots to rot at the tips.

Seakale forcing is a very simple operation, provided only a little warmth is used; 55° to 60° is sufficient. *N. Molyneux, Rooksbury Park, Wickham, Hants.*

HOME CORRESPONDENCE.

Tropaeolum tuberosum.—In reply to *P. M. T., Hereford,* p. 360, my experience of Tropaeolum tuberosum may be of some interest to him. When living in Jersey many years ago, tubers of this plant were given to me. Even there they bloomed late and sparsely. A few years later, I saw the plant in South Devon—about August, I think—and there it was flowering profusely. Again, in Ayrshire and also in Wigtonshire, in high summer, I saw it on cottage walls flowering lavishly. I remember my friend the late S. Wyndham Fitzherbert, was of the opinion that there were two forms of this species, and I think that *P. M. T.'s,* and my own experience, proves it. It is curious that in both experiences the early-blooming variety was seen both in East and West Scotland, the late form in the south! *C. M. B.*

The Germination of Celery Seed.—Has the treatment of Celery seed, as recommended by the Ministry of Agriculture for the eradication of disease, any effect on germination? Treated seeds procured this season have germinated very slowly. A few seedlings appeared after a normal period, others at intervals, some after several weeks. This occurred with three varieties of Celery and a variety of Celeriac. The germination of seeds from two other sources was normal. The whole of the seedlings, at the time of writing, are healthy. If the treatment of the seeds is effective in warding off the disease, the possible retarded germination will be fully compensated. *C. Ruse.*

Deterioration of Strawberry Plants.—I was very much interested in Mr. A. J. Hartless' remarks on Strawberries (p. 358). I fear that unless something is done to check the trouble, the growing of Strawberries in this country will soon be impossible. I know of several noted gardeners in this county whose Strawberries are affected with the complaint referred to by your correspondent and have secured new stock with no good results. The plantations in these gardens are affected, although, until last season I boasted of the constitution of my stock; the foliage of the plants was strong and vigorous. The plants in the bed referred to above were obtained from this robust stock, but to my surprise, after being planted out in well prepared soil, the runners gradually became brown and dried up, just as if the plants were injured by hot water. I am inclined to agree with Mr. Hartless that the introduction of new stock will not solve the problem, even if planted on ground that has not been used for growing Strawberries for several years. I hope other readers will give their experiences of this disease, and also what means they have adopted to keep their stock clean and vogorous, and whether they have been successful. *T. Pateman, Brocket Hall Gardens, Hatfield.*

Gladiolus.—I trust Mr. Kelway will pardon me for offering one or two comments and corrections to his interesting article on the Gladiolus. While it is true that the first Cape Gladiolus of which we have record was G. tristis, there were garden Gladioli long before that day. In the *Hortus eystettensis* of Besler, published in 1613, there are six varieties figured, four of which at least might be called garden plants, particularly that named Gladiolus narbonensium flore purpureo. A spike is shown with nine or ten flowers, and it seems difficult to imagine that this can be one of the European varieties, such as G. byzantinus. In any case, we should not, I think, definitely rule out the possibility that Cape Gladiolus may have arrived in Europe before 1745. In dealing with the history of the Gandavensis class, Mr. Kelway does, I venture to think, less than justice to the early efforts of English raisers. Van Houtte was only the distributor of this class, and made no claim in his own paper or catalogues of having raised it, and the generally accepted story was that Bedinghaus, gardener to the Duc d'Arenberg, raised it in the famous Enghien Garden from seed sown in 1837, and flowered plants in 1839 and 1840. We must not overlook the fact, however, than Dean Herbert had been raising Gladiolus hybrids from the year 1810, and in an article in *The Gardeners' Chronicle,* March 2, 1844, he states that Mr. Bidwill, also an Englishman, had raised seedlings with the same parentage as the famous Gandavensis. It is possible then that the Enghien plant might have been imported from England. We must not also overlook Gladiolus Brenchleyensis, raised by Mr. Hooker, a nurseryman of Brenchley, Kent, also said to be a psittacinus and floribundus cross which, though called Brenchleyensis is of the same origin as the so-called Gandavensis. There was thus a considerable amount of work done before Souchet begun his work in 1850. His death occurrred in 1880, not in 1872, as stated. Mr. Kelway hardly allows sufficient credit to the great work done by Standish in 1860, who should surely be placed as the first of English garden Gladiolus raisers. Over 120 varieties of his raising are recorded in garden papers of the period. It must, therefore, I think, be admitted that the early history and development of Gladiolus owes much to raisers in this country, and it is quite possible that the original starting point, the so-called Gandavensis, may have indeed originated here. *Edward A. Bunyard.*

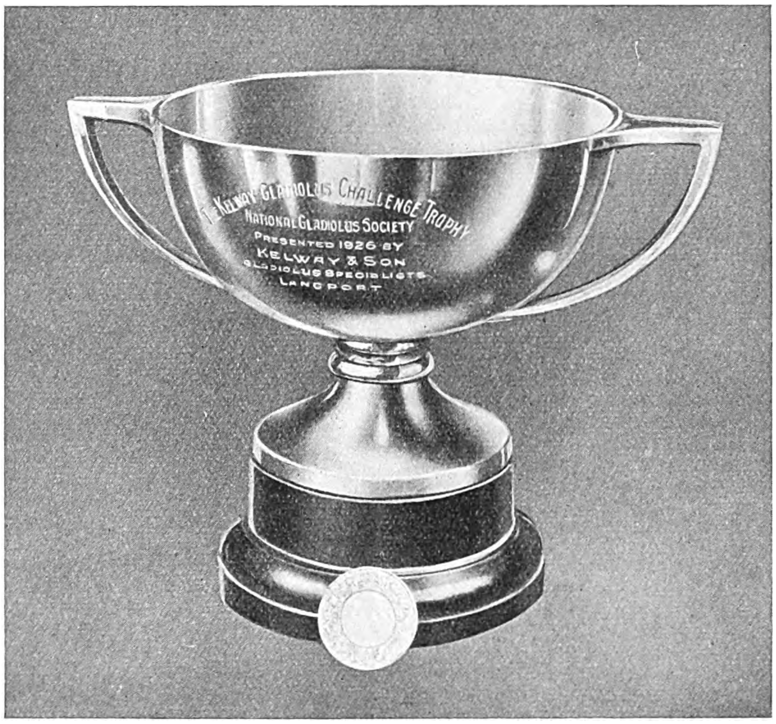

The Kelway Gladiolus Challenge Trophy
National Gladiolus Society
Presented 1926 by
Kelway & Son
Gladiolus Specialists
Langport

FIG. 204.—THE KELWAY GLADIOLUS TROPHY AND MEDAL.
(see p. 405).

Problems of Bolting.—Referring to the article on this subject in your issue of May 28, p. 372, whether bolting of Mangolds belongs to the category of "Mysteries" or not is a matter for argument, but there is no doubt that it could be controlled by practical means. As a boy, I remember my father promising a farmer that if he had more than one "bolt" to the acre, he would give him a pound apiece for them. In those days every pound of seed was grown from selected bulbs, stored and planted out in spring. Seed sold now is grown in about fifteen months instead of two years, and the old system is only used in growing a limited quantity of seeds for stock. Of course, no grower could meet modern competition with seeds grown in the old style, so that if Mr. Darlington's plan of raising non-bolting stocks proves successful, it may be a more economical way out of the difficulty. *Charles E. Pearson, F.L.S.*

Lilium regale seedlings. — In your issue of April 30, page 302, there is an article by Mr. Grove on the subject of "Lilies and Manure," in which he gives his experience of growing Lily regale from seed, and states that he sowed the seeds in the beginning of March, in the open, and that some of the seedlings flowered at the end of eight-and-a-half months from the date of sowing. I have grown several lots of seedlings of this Lily and the plants have never flowered under two years. It would be a great inducement to grow this splendid Lily if it could be flowered in eight-and-a-half months from the time of sowing the seed. Perhaps Mr. Grove would further explain his methods. *W. W. Carruthers, 17, Palmerston Park, Dublin.*

SOCIETIES.

IRIS.

June 2.—As a spectacle, the first show of the Iris Society, which was held at the R.H.S. Hall, Westminster, on this date, was a decided success. The hall was well filled with beautiful Irises; there was a large number of new varieties to delight and engross the enthusiast, and the attendance was as large as could be expected in view of the many other functions on the same date. The genial Honorary Secretary, Mr. G. N. Bunyard, enthusiastically welcomed interested visitors, and whole-heartedly congratulated the amateur exhibitors on the excellence of their flowers. The judging was completed before noon. We hope the Iris show will become an annual event, for it was a very attractive show, and it served a most valuable purpose in bringing together the best of the June-flowering varieties of the several sections, and in illustrating the great improvements that have been effected in the flower. We have no doubt that, with the experience gained at this, their first show, the Society will make the few needed improvements, such as indicating on the cards the nature and object of the exhibits. A great many new seedlings were selected "for trial at Wisley," but, as most of them were shown under seedling numbers no useful purpose would be served by describing them. The named novelties are commented upon in our remarks on the exhibits in the New Seedling Classes.

Competitive Exhibits.

In the eight classes open only to amateurs, Mr. B. R. Long, Richmond, Surrey, was a particularly successful exhibitor. Mr. Long may well be termed the "dark horse" of the Iris world, and we believe that this was the first time he has ever exhibited. Not only did he show magnificent spikes of a great variety of Irises, but, with the aid of Mrs. Long, he set them up admirably. Mr. Long won first prizes for a large group, eighteen spikes, twelve spikes and six spikes, all of bearded Irises, and was also awarded the Veitch Memorial Medal for his large group, as being the best amateur group in the show. His large group, which occupied twenty-five feet run of tabling, was very handsome, and included the following varieties: Isoline, rosy-amethyst standards and velvety-purple falls, shaded with old rose and lined with gold at the throat; Colonel Candelot, reddish-bronze standards and velvety crimson falls; Ambassadeur, reddish-violet standards and deep velvety chestnut falls; Madame Choubaut, creamy standards, shot with yellow and ruby, and creamy-white falls edged with lilac; Mdlle. Schwartz, a very tall spike of pale mauve flowers. Sir William Lawrence, Bt., Burford, Dorking, was second, and he included Dalila, Eldorado and Iris King, three showy varieties with yellow colouring on the standards; Caprice, reddish-purple standards and falls of a deep tone of the same colour; and Opera, bronzy-purple standards and dark crimson falls, suffused with velvety violet. Mr. G. P. Baker, Sevenoaks, was third in this important class.

In the class for a medium-sized group of bearded Irises, the first prize was awarded to Mr. G. L. Pilkington, Woolton, for a collection which included Amber, Fro, Moonlight, Dusky Maid and Quaker Lady. This collection was also awarded the Silver Medal of the American Iris Society.

The first prize exhibit in the class for a group of bearded Irises, arranged on eight feet run of tabling, reached a high standard of merit, and the first prize was awarded to Mr. C. W. Christie-Miller, Sonning, for a splendid vase of Prosper Laugier, coppery crimson standards and very broad falls; Souvenir de Madame Gaudichau, a tall spike of deep purple bicolor flowers; Ambassadeur, of high quality, and Mrs. Alan Gray, of delightful lilac tone, lightly shaded with pink. Mr. Pilkington, who was second in this strong class, had very good vases of Abenda, Alcazar and Trojana. Mr. Long's first prize exhibit of eighteen spikes of bearded Irises was excellent. He included Flamenschwert, bright yellow standards and crimson-maroon falls, edged with yellow; Imperator, J. B. Dumas and Edward Michel, of very high quality. Sir William Lawrence, Bt., was second and Lady Elphinstone, Worplesdon, was third.

The same high quality was shown by Mr. Long in his first prize exhibit of twelve spikes, and here he included Mady Carriere, Mrs. Stafford, Red Denis and Ambassadeur. Mr. Pilkington was second, and Mr. W. Allison, Wimbledon, was third. Chief amongst Mr. Long's first prize six vases were Mons. Cornault, Mdlle. Schwartz and Madame Durand. Mr. A. J. Bliss, Tavistock, was second, and he included Bruno, Opera and a couple of good seedlings. Sir William Lawrence, Bt., had the best three spikes of any one variety of bearded Iris.

The class for three spikes, each of three Irises other than bearded, was not quite so popular as the others. Sir William Lawrence, Bt., was first with Tenax, a beautiful Californian Iris, Forrestii and Bulleyana. Mr. James Peech, Cautley Park, was awarded the second prize for vases of Luna and Terpsichore, two beautiful Irises of Susiana type, and Hoogiana, a soft lavender Regelia Iris.

The class for six vases of Iris sibirica varieties was well represented. Mr. C. W. Christie-Miller was first with a good collection, which included Snow Queen, Emperor and orientalis. Mr. G. Yeld, Gerrards Cross, who was second, had beautiful vases of Emperor and Perry's Blue. Mr. R. E. Spear, Bagley Wood, was awarded the first prize for six excellent vases of bulbous Irises. Mrs. Fitzhugh was awarded the first prize for a pleasantly arranged "collection of species and/or varieties." Lt.-Col. C. Hoare Grey, Hocker Edge, Cranbrook, who was second, had good vases of I. Tenax, I. Purdyi, I. sibirica and I. orientalis.

There was a good array of new seedling Irises for open competition. The best six bearded varieties were shown by Mrs. W. R. Dykes, who had Cupano, an immense flower with satiny-mauve standards and long, purple falls; Britoness, a large, loosely-made pale yellow flower with a golden beard, and Akbar (see Fig. 196), metallic purple lined standards and velvety-purple falls. The other three flowers were very beautiful, but unnamed. Messrs. G. Bunyard and Co. were second with very good seedlings. The best three new seedling bearded Irises were shown by Messrs. R. W. Wallace and Co., who had a fine flower of Rajah, with purple standard and velvety purple falls which are lighter in colour at the edges. Their other two flowers and the second prize exhibit of the Orpington Nurseries were unnamed. The prize winning spikes of one seedling bearded Iris were not named. Mrs. Dykes was first, Messrs. G. Bunyard and Co. and Mr. F. Burton, Hildenborough, were placed equal second.

Mr. Amos Perry had the best new seedling Irises other than bearded. His three were Chryso-for delicata, a pretty little hybrid between I. chrysographes and I. Fortunei; Te-bracteata, derived from I. Tenax and I. bracteata, and Purdyi alba. His first prize single variety was I. hybrida Margot Holmes, a rich, rose-purple flower obtained by crossing I. chrysographes and I. Douglasiana.

Non-Competitive Exhibits.

Messrs. Barr and Sons arranged a very large collection, chiefly of bearded Irises, but the other types were also well represented. Their chief varieties were Dalila, Eldorado, Caprice, Mount Penn, variegata aurea, Ossian, Crepuscle, Opera, Miss Maggie, Lorely, Porcelain, Gagus and Her Majesty.

Along the front of his interesting group, Mr. Amos Perry had vases of the beautiful little flowers of I. sibirica, I. Tenax, I. Virginica purpurea, I. Spuria pallida and I. Purdyi. His bearded varieties included some good pallida seedlings, Mrs. Hardy, Korus, Duke of York, George Yeld, Lord Lambourne, Mrs. W. Cuthbertson and Abenda.

Many seedlings of merit were included by Messrs. R. W. Wallace and Co. in their well-arranged exhibit. Their named sorts included Olympicus, Mrs. Tinley, Ivory, Sir Galahad and Prospero. Against the wall, Messrs. Waterer, Sons and Crisp had a boldly arranged group of such sorts as King of the Irises, Magnifica, Flaming Sword, Ambassadeur, Prospero and Dalila.

A large collection set up by Messrs. G. Bunyard and Co. included various Iris sibirica varieties, I. Tenax and seedling bearded Irises of merit. The chief named varieties were Sirius, Ambassadeur, Duke of Bedford, Corida, Romany, Nagara and Swazi. Messrs. Lowe and Gibson showed Hilda, Clematis, Quaker Lady, Dora Longdon, Blue Bird, Margaret Moore and other valuable sorts.

Mr. G. Reuthe had a pleasantly arranged group which included Gracchus, Cretonne, Contemplation, Bruno and Her Majesty. The Orpington Nurseries, in a large collection, gave prominent places to vases of Sir Michael Foster, Romola, Swartara, Neptune, Seminole, Lorely, White Knight, Rosalba, Iris King and Dream.

In the annexe, there were interesting paintings of various Irises, shown by Sir Mark Collet, Mr. F. H. Round and Mr. W. J. Caparne.

WAKEFIELD AND NORTH OF ENGLAND TULIP.

The ninety-first annual exhibition of the Wakefield and North of England Tulip Society was held on May 21, 22 and 23, at the Brunswick Hotel, Wakefield. At the opening of the exhibition by Mr. Watmough, the President, Mr. C. W. Needham, stated that the show was the best they had held for many years. This Wakefield exhibition, he said, was probably the only surviving Tulip show in England, except for the National Tulip Society's show. It had existed for at least 150 years, although the records only went back to ninety years.

For the seventh year in succession Mr. Needham won the Silver Challenge Cup for the best stand of nine Tulips, and he also won the prize offered for the premier breeder with Daphne.

Mr. C. J. Fox, of Mosley, was second, and won the first prize for the premier flamed and the premier feathered varieties with King of the Universe and Lord Frederick Cavendish, respectively. Mr. Gerald W. Bentley, of Castleton, near Manchester, was third. Mr. Needham also excelled in the class for six breeders, dissimilar, in which Mr. Gerald W. Bentley was second and Mr. Frank Fox, third. Mr. C. J. Fox excelled in the class for a pair of flamed Tulips, showing Sam Barlow and Annie McGregor. This gentleman also excelled in the class for a pair of feathered Tulips, with Adonis and Lord Frederick Cavendish. Mr. C. W. Needham was second in the latter class with the varieties Mrs. Collier and William Wilson. In the local classes, Mr. Robert Robinson, of Horbury Junction, had the best pan of six rectified Tulips, dissimilar, in which class Mr. S. F. Richmond was second. The latter gentleman excelled in the class for six breeders, dissimilar. The first prize in this, as in the similar open class, included six bulbs of Lilium longiflorum (Harrissii) offered by the Bermuda Department of Agriculture.

For the best pan of three breeders, dissimilar, Mr. E. H. Robinson was placed first with bizarre, Gleam, bybloemen, Lucy Luard and rose, Annie McGregor. Mr. R. Robinson was second, and Mr. W. Robinson, third. In the class for one breeder, one flamed and one feathered Tulip, all of one colour, Mr. R. Robinson excelled with bybloemen, Columbine, breeder, Duchess of Sutherland, flamed, and Lilian, feathered; Mr. W. Robinson was second. In the single bloom local classes, Mr. F. Fox won the first prize for a bizarre breeder with Gleam, and a rose breeder with Annie McGregor; Mr. S. F. Richmond for a bybloemen breeder with Lucy Luard; a bizarre flamed, with Sir Joseph Paxton; a bybloemen, flamed, with Trip to Stockport; a rose, flamed, with Mabel and a rose, feathered, with Mrs. Douglas Fox. In the class for a bizarre, feathered, Mr. I. Hewitt was first with William Lee; and for a bybloemen, feathered, Mr. R. Robinson excelled with William Annabel. Mr. W. Robinson was first in the "Novice" class with Sam Barlow, Trip to Stockport and Annie McGregor, his specimen of Sam Barlow being adjudged the premier bizarre, flamed flower.

ROYAL HORTICULTURAL.

June 8 and 9.—Seeing that it followed so closely upon the Spring Show at Chelsea and was in Whitsun week, this was a larger show than might have been expected. The hall was well filled with bright floral exhibits, but the attendance was only moderate. Sweet Peas, Irises, Roses and seasonable border flowers were well shown and the Floral Committee recommended one First Class Certificate and nine Awards of Merit to novelties, and selected two Delphiniums for trial at Wisley. While the exhibits of Orchids were not large, they included many beautiful plants.

Orchid Committee.

Present: Sir Jeremiah Colman, Bart. (in the chair), Hon. H. D. McLaren, Mr. Gurney Wilson (Secretary), Mr. S. W. Flory, Mr. Robert Paterson, Mr. John Cowan, Mr. A. McBean, Mr. H. G. Alexander, Mr. A. Dye, Mr. T. Armstrong and Mr. Frederick J. Hanbury.

First-Class Certificate.

Miltonia Princess Mary, Westonbirt var. (*Hyeana* × *Bleuana*).—From Messrs. H. G. Alexander, Ltd., Westonbirt, Tetbury, Gloucestershire. A very attractive flower, of large size. The sepals are lightly suffused with crimson, and the petals heavily flushed with similar colour; the labellum also has some crimson tinting, but the distinguishing feature is the reddish mask and radiating lines. The plant bore two spikes, each with three flowers.

Awards of Merit.

Miltonia Kennie, Westonbirt var. (*Venus* × *vexillaria*).—From Messrs. H. G. Alexander, Ltd. A pleasing hybrid with a spike of four flowers; the colour is rosy-mauve, the labellum with crimson blotching and radiating lines arranged on a somewhat lighter ground.

Burrageara Windsor, var. purpurea (*Oncidioda Cooksoniae* × *Odontonia Firminii*).—From Messrs. Black and Flory, Slough. This variety possesses a deeper tint of lilac-rose than in the previous ones shown. The labellum is of solid rose-purple, with a bronze coloured disc near each shoulder. The inflorescence was about four feet in length and bore many flowers of a graceful and decorative nature.

Odontoglossum Ascania Stamperland var. (*Antinous* × *Georgius Rex*).—From Robert Paterson, Esq., Stamperland, Cathcart, Glasgow. An attractive hybrid with an erect spike of six flowers, rather larger than usual, and coloured golden-yellow with red-brown blotching; the broadly-formed labellum is cream-white with yellowish shading.

Cultural Commendation.

To Laelio-Cattleya Canhamiana alba, Stonehurst var. (C. Mossiae × L. purpurata).—From Robert Paterson, Esq. A grand specimen of this well-known Orchid. The plant bore five spikes with a total of eighteen large flowers; the sepals and petals are pure white, the labellum rich purple.

Groups.

Mr. John Evans, Colwyn Bay, North Wales, had a well-arranged exhibit of choice hybrids, including a richly-coloured form of Miltonia Bleuana, several pretty varieties of Odontoglossum amabile, O. Seraphis, purple-red; Odontioda Hanmerae, crimson-red, and the attractive Cattleya, J. P. Walker. Cypripediums were a special feature and included C. Curtisii Sanderae, C. Lawrenceanum, with six flowers, and half-a-dozen well-flowered examples of C. Enchantress, with flowers of an artistic emerald-green colour.

Messrs. Charlesworth and Co., Haywards Heath, had an interesting group, in which the curious Bulbophyllum longisepalum and the tall, Dendrobium Dalhousieanum came in for appreciation. Miltonia hybrids were well-shown, also some reddish Odiontiodas, Cattleya Mendelii var. The Queen, a pretty white flower, and a varied selection of Odontoglossums.

Messrs. Stuart Low and Co., Jarvisbrook, Sussex, made a feature of Laelio-Cattleya Aphrodite, of which a distinct variety bore eight large flowers. There were also examples of L.-C. Canhamiana, and pretty forms of Cattleya Mossiae. An old-time plant was shown in Selenipedium grande, while a special attraction was Bulbophyllum virescens, with its curiously formed umbel of greenish flowers.

Messrs. Sanders, St. Albans, showed the pleasing Renanthera Imschootiana in their group, along with Maxillaria tenuifolia and the scarce Cleisostoma lanata. Dendrobiums were well represented by D. infundibulum and D. Dalhousieanum. Laelio-Cattleya Aphrodite and L.-C. Isabel Sander both have white sepals and petals, while the central area of the group was attractively arranged with Bletia Shepherdii.

Robert Paterson, Esq., Cathcart, Glasgow, exhibited Odontioda Cornelia, blood-red, the attractive Miltonia Lucia, and Vuylstekeara Aspasia, with varying crimson tints.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mr. Wm. Howe, Mr. J. M. Bridgeford, Lady Beatrix Stanley, Mrs. Ethel M. Wightman, Mr. D. Ingamells, Mr. Donald Allan, Mr. E. R. Janes, Mr. R. Findlay, Mr. A. E. Vasey, Mr. George Churcher, Mr. W. B. Gingell, Mr. D. B. Crane and Mr. Charles E. Pearson.

Section B.—Mr. Gerald W. E. Loder (in the chair), Mr. Charles T. Musgrave, Mr. F. R. Preston, Mr. Amos Perry, Mr. G. Yeld, Mr. T. Hay, Mr. E. H. Wilding, Sir William Lawrence, Bart., the Hon Henry D. McLaren, Mr. Reginald, Cory, Mr. R. D. Trotter, Mr. R. C. Notcutt, Mr. G. Reuthe and Mr. W. B. Cranfield.

First Class Certificate.

Meconopsis Baileyi.—This handsome "Blue Poppy" received an Award of Merit on April 7, 1926, when a plant was shown by Lady Aberconway bearing solitary flowers. Now two very vigorous plants were shown, and these had beautiful rich blue flowers of slightly different shades of colour on long, axillary pedicels. This is a variable species; Fig. 171 in *The Gardeners' Chronicle* for May 8, 1926, which illustrates Captain F. Kingdon Ward's article on "The Genus Meconopsis," shows a somewhat different plant from that shown from Bodnant, and presumably raised from seed collected by Captain Kingdon Ward. The species is again reviewed by the same writer on page 460 of the same year. Shown by Lady Aberconway (gr., Mr. F. C. Puddle), Bodnant, North Wales.

Awards of Merit.

Caesalpinia Gilliesii.—In favoured places this leguminous shrub, or small tree, will sometimes withstand the winter cold, but it is not generally hardy. A branched little bush growing in a large flower pot was shown, and this bore the characteristic, much divided leaves and dull yellow flowers, with long bright red anthers protruding three or four inches. Shown by John Scott, Esq., 56, Nightingale Lane, Balham.

Deutzia discolor stellata.—This is a very ornamental variety of the well-known hardy, deciduous Deutzia. The long, graceful sprays bear pink flowers. Shown by Lt.-Col. Messel, Nymans, Sussex.

Iris hybrida Margot Holmes.—A very pretty little Iris raised from I. chrysographes and I. Douglasiana. The flowers are of royal purple colour and the falls have golden lines on the base. Shown by Mr. Amos Perry.

Erica Tetralix mollis.—The soft, little leaves are covered with down which gives the whole plant a frosted appearance. The plant bore plenty of white, bell-shaped flowers. Shown by Messrs. D. Stewart and Son.

Gaultheria oppositifolia.—This is an uncommon and attractive species from New Zealand where it grows about eight feet in height. The ovate, acute, evergreen leaves are about one-and-a-half inch long and half-an-inch across at the wider part, and are lightly serrated. The waxy white flowers are borne in dense, terminal racemes. Shown by Gerald W. E. Loder, Esq., Wakehurst Place, Sussex.

Nomocharis sp.—A small plant bearing a solitary, terminal flower of this Eastern liliaceous plant was shown. The flower was widely expanded. The segments are pink with brown-green centre, and the erect anthers are green. Shown by Lady Aberconway.

Pyrethrum Marjorie Robinson.—A beautiful variety which bears large, soft, pink flowers.

Pyrethrum Scarlet Glow.—Another splendid variety. The flowers are a glowing rosy-scarlet colour. Both were shown by Mr. Hubert Robinson.

Zephyranthes Rose of Burford.—This very pretty Wind Flower was raised from Z. verecunda and Z. carinata. The rich pink buds open to delicate flowers with pink lines and pink flushing. Shown by Sir William Lawrence, Bart., Burford, Dorking.

For Trial at Wisley.

Delphinium Sir Austen Chamberlain.—A handsome spike of large, round, lavender flowers which have an outer row of blue petals.

Delphinium Wedding Bells.—A very charming variety. It has a tall, well-formed spike of large, round, pale lavender flowers, with an occasional sky-blue petal. Both were shown by Messrs. Kelway and Son.

Groups.

Although there were only two exhibits of Sweet Peas, these flowers were the outstanding floral feature of the show, for Messrs. Robert Bolton and Son and Messrs. Dobbie and Co. had very extensive collections of splendid flowers which at once arrested attention and compelled admiration. Not only were these large collections arranged with considerable taste and skill, they were also composed of superbly-grown flowers.

The central place was given by Messrs. Robert Bolton and Son to a large quantity of Mrs. A. Searles, the vividly beautiful variety which won the Gold Medal at the trials of the National Sweet Pea Society last year. The majority of the spikes of this variety carried five blooms each. Bright colour was also provided by Mammoth, Grenadier and Colorado, while Jessie, Royal Pink, and Miss California well represented the pink varieties. Picture and Comrade, two cream-pink varieties, and the rich orange-coloured Royal Sovereign were also splendidly shown.

In the equally large collection of fine Sweet Peas so well set up by Messrs. Dobbie and Co., the attention of the specialist was drawn to the novelties they displayed. Sunkist is a magnificent cream-ground Picotee variety, with a definite margin; Hero is a glowing rose-cerise flower of great merit. Pnkie, while, perhaps, not everyone's shade of pink, has very good qualities; Prince of Orange, the rich colouring of which we admired at Chelsea, was again shown in good form; Flamingo is a good, deep, pink-coloured variety; while in Camellia and Constance Hinton they showed two good white Sweet Peas.

Interesting collections of Roses were shown by several growers. Mr. George Prince included a large vase of Rosa hemispherica in his collection, a rare Rose which bears double flowers of an uncommon shade of yellow. Rosa Harrisonii, the Yellow Scotch Rose, Violetta, and various garden varieties were also shown. Messrs. George Bunyard and Co. had a small but very interesting collection of old Roses, such as the Apothecary's Rose, Blush gallica, De Meaux and Stanwell Perfection. Mr. J. H. Pemberton had Penzance Briars and other useful Roses.

A collection of especially well-grown Streptocarpus was shown by Messrs. Sutton and Sons. The plants were in circles and included rose shades, Giant Blue, Giant White and mixed shades. In another place they showed some very pretty Calceolaria gracilis John Innes strain. Messrs. R. and J. Cuthbert set up a large collection of well-grown Tritonia Prince of Orange. Messrs. J. Cheal and Sons had cut flowers of Dahlias, chiefly of the Star and Mignon types.

A splendid selection of his handsome varieties of Hydrangea Hortensia was again shown by Mr. H. J. Jones. Messrs. Allwood Bros.

and Messrs. C. Engelmann, Ltd., staged good collections of Carnations. A large exhibit of herbaceous Paeonies and Delphiniums was made by Messrs. Kelway and Son. The former included many beautiful single varieties, such as Queen of the Belgians, white; Lady Ley, blush; Colonel Poe, pink; and Countess of Warwick, a large, blush flower. Chief amongst the double flowered varieties were Queen Mary, pink; Lovely, deep pink; Lady Alexander Duff, blush; and Remembrance, ruby-crimson. The Delphiniums included tall, shapely spikes of Persimmon, Evening, Rosemary and Mrs. H. J. Jones. In a smaller collection of Delphiniums, Messrs. Blackmore and Langdon set up handsome spikes of Constance, large blue flowers with a white centre, and R. A. Pilkington, an uncommon shade of purple.

A goodly length of tabling was filled by Messrs. Ladhams, Ltd., with seasonable border flowers, including the beautiful garden Pinks of which they have so many good varieties. Large vases of Buddleia globosa and Lavatera Olbia were also included. Messrs. Godfrey and Son showed well-grown pot plants of Campanula persicifolia Pride of Exmouth.

A collection of miscellaneous border flowers arranged by the Chalk Hills Nursery Co. included Lupins, Paeonies, Geums, Irises and a good batch of double-flowered Ryburgh Poppies. Mr. W. J. Unwin staged a quantity of Iceland Poppies named Coonara Pink, but the colour is not yet fixed, though the exhibit was very pretty.

Messrs. J. R. Pearson and Sons arranged a delightful collection of their Lowdham strain of Aquilegias, which embraced many lovely colours. Mr. John Klinkert had a small collection of Topiary specimens.

Irises, principally the tall bearded varieties, were shown extensively. Messrs. Barr and Sons had many good varieties, and they also showed Lupinus polyphyllus in named varieties, such as Ruby King, Nelly, a beautiful lilac-shaded spike, and Taplow Purple. They also had various Alliums, including A. albo-pilosum. Messrs. R. H. Bath, Ltd., associated their Irises with a good selection of Pyrethrums. Messrs Waterer, Sons and Crisp and the Orpington Nurseries, had good collections. Messrs. Stewart and Son showed, in addition to Irises, Lupins, Erica cinerea coccinea, Rhododendron fragrans and Richardia Elliottiana.

A very effective display, chiefly of Irises and hardy Ferns, was made by Mr. Amos Perry. He also exhibited an interesting selection of Alliums, some splendid double-flowered Gerberas, Lilium philadelphicum and Cypripedium spectabile. In addition to some good Irises, Messrs. Wallace and Co. displayed Lilium regale and Rosa Moyesii.

The West Kent strain of Lupinus polyphyllus shown by Messrs. E. J. Redgrove and Son included many good colours, and their bordering of the dwarf Veronica Shirley Blue was also very effective. In a well arranged collection of hardy flowers, Mr. F. G. Wood included the dwarf, floriferous Mimulus Whitecroft Orange with other Musks, and also showed various Primulas and Gazanias. The last-named included the old favourite G. splendens, G. montana and a pretty soft yellow hybrid named Vanity. The Misses Hopkins had a rock garden planted with seasonable subjects.

An extensive exhibit arranged by Messrs. M. Prichard and Sons included herbaceous Paeonies, Oriental Poppies, Lupins and garden Pinks. Messrs. Bakers, Ltd., showed various Lupins, Primulas, Dianthus and Cypripedium spectabile. In their rock garden exhibit, Messrs. Tucker and Sons displayed the beautiful Saxifraga Cotyledon platyphyllum, Primula capitata and other seasonal alpines.

Capt. Symons-Jeune had a most delightfully arranged exhibit of Saxifraga Tumbling Waters. Messrs. Maxwell and Beale planted in their rock garden good batches of Incarvillea Delavayi, Primulas in variety, and dwarf Ericas.

Messrs. G. and A. Clark used a good selection of alpines to effect and also showed Lupins Irises and Pyrethrums. Mr. Gavin Jones had an interesting rock garden exhibit.

In a well-designed rock garden, Mr. Clarence Elliott planted Campanula barbata, Calceolaria purpurea and other uncommon and decorative alpines. At one end of his exhibit he had the pretty Lilium rubellum. A good variety of alpines was displayed by Messrs. W. H. Rogers and Son.

Fruit and Vegetable Committee.

Present: Mr. J. Cheal (in the chair), Mr. S. Rivers, Mr. George F. Tinley, Mr. E. A. Bunyard, Mr. W. H. Divers, Mr. A. Bullock, and Mr. A. N. Rawes (Secretary).

Reference was made to the honour conferred by the King on Mr. William Lobjoit, a member of the Committee, and the Secretary was instructed to send Sir William Lobjoit a letter of congratulation from the Committee.

The only exhibit before this Committee was Globe Artichoke Gros Camus d'Angersis, a variety with very globular heads and with imbricated scale leaves. The variety is sometimes eaten raw, but cooked heads were sent for tasting, and the quality was exceptionally good. The variety was recommended for trial at Wisley. Shown by Sir William Lawrence, Bart., Burford, Dorking.

Awards to Lachenalias.

The following awards have been made by the Royal Horticultural Society to Lachenalias after trial at Wisley. The trial was a comprehensive one; it included nearly all the varieties of these plants which have hitherto been named, and the number of seedlings raised by the Rev. Joseph Jacob included in the awards is very remarkable. These seedlings are so beautiful that they constitute a worthy memorial to the discriminating taste and to the energy of the raiser who sent them to Wisley so shortly before he died.

Awards of Merit.

Siam, sent by Messrs. Mauger; *Canada, Thibet, Mandalay, Arabia, Calcutta, Tipperary, Leiden*, all sent by the late Rev. J. Jacob; and *Boundii*, sent by Messrs. W. P. Bound and Son.

Highly Commended.

Goldfinch and Monte Carlo, both sent by Messrs. Mauger; Africa and Monaco, both sent by the late Rev. J. Jacob.

Awards to Aubrietias.

The following awards have been made to Aubrietias by the Royal Horticultural Society after trial at Wisley.

Awards of Merit.

Vindictive and *Carnival*, both sent by Messrs. Clarence Elliott, Ltd.

Highly Commended.

Gloriosa, sent by Messrs. M. Prichard and Sons and Messrs. Ruys; Studland, sent by Messrs. M. Prichard and Sons; J. S. Baker, sent by Messrs. Barr and Sons; Magician, sent by the R.H.S.

Commended.

Prichard's A.1., sent by Messrs. Barr and Sons.

Awards to Freesias.

Awards of Merit.

Flowers white.—*Giant White*, sent by Messrs. F. H. Chapman.

Flowers Yellow.—*Orange Tip* and *Golden Eagle*, both sent by Mr. G. H. Dalrymple; *Treasure*, sent by Messrs. van Tubergen, Messrs. van Waveren, Mr. G. H. Dalrymple and Messrs. J. Carter and Co.; *Yellow Hammer*, sent by Mr. G. H. Dalrymple.

Flowers Rose.—*Jubilee*, sent by Mr. G. H. Dalrymple, Messrs. van Waveren, Messrs. J. Carter and Co., and Messrs. van Tubergen; *Apotheosis*, sent by Messrs. van Tubergen.

Flowers Pale Blue.—*Wistaria*, sent by Messrs. Dobbie and Co.

Flowers Lavender.—*Orchidea* and *Fairy*, both sent by Messrs. van Tubergen; *Grey Dawn*, sent by Mr. G. H. Dalrymple.

Highly Commended.

Flowers Yellow.—Apogee, sent by Messrs. van Tubergen and Mr. G. H. Dalrymple; Buttercup, sent by Messrs. Van Tubergen, Messrs. J. Carter and Co., Mr. G. H. Dalrymple and Messrs. Mauger; Golden Oriole, sent by Mr. G. H. Dalrymple.

Flowers Rose.—Mouette, sent by Mr. G. H. Dalrymple and Messrs. J. Carter and Co.; Youth and Rosebud, both sent by Mr. G. H. Dalrymple; Conquest, sent by Messrs. J. Carter and Co., Mr. G. H. Dalrymple, Messrs. van Waveren and Messrs. van Tubergen; Old Rose, sent by Mr. G. H. Dalrymple.

Flowers Red.—Red Indian, sent by Mr G. H. Dalrymple.

Flowers Pale Blue.—Bluebeard, sent by Mr. G. H. Dalrymple.

Flowers Lavender.—Coeur d'Or, sent by Messrs. van Tubergen; Twilight, sent by Mr. G. H. Dalrymple.

Commended.

Flowers Red.—Robinetta, sent by Mr. G. H. Dalrymple, Messrs. van Waveren and Messrs. van Tubergen.

ROYAL SCOTTISH ARBORICULTURAL.

(Aberdeen Branch.)

Wednesday, May 18, was a red-letter day in the annals of the Aberdeen Branch of the Royal Scottish Arboricultural Society, for on that date twenty-one years ago the branch was founded. To celebrate the anniversary a reception and luncheon was held in the same building, the Douglas Hotel, Aberdeen, where the branch was inaugurated twenty-one years ago. Amongst those present were Colonel J. D. Sutherland, O.B.E., LL.D., Edinburgh, Assistant Forestry Commissioner for Scotland; Mr. J. M. Caie, M.A., B.L., B.Sc. (Agr.), Edinburgh (representing the Board of Agriculture), and Colonel A. D. G. Gardyne of Finavon, Forfar (representing the Landowners' Co-operative Forestry Society). Mr. John Michie, M.V.O., Kincairn, Aberdeen, the President of the branch, presided, and was supported by over a hundred members and friends representative of other kindred bodies.

Lieut.-Col. Fotheringham, of Murthly, proposed the toast of the Aberdeen Branch of the Royal Scottish Arboricultural Society. He recalled to his hearers that the branch was the first offshoot of the parent society, and one to which his heart had always gone. The counties of Aberdeen, Banff and Kincardine, the territory of the branch, had always been amongst the most wooded parts of the country, and they afforded great scope for the excursions of the branch which, he was sure, had resulted in much valuable knowledge being gained in that way of the work of foresters and arboriculturists.

Mr. Charles S. France, F.B.S., Aberdeen, the first Secretary of the branch, a Past President and a veteran who has done yeoman service in the cause of forestry in the north of Scotland, replied. He gave details of the work of the branch, and told of the immense amount of benefit that had accrued, not only to its members but to the cause of forestry in the north-east through its activities.

Mr. Sydney J. Gammell, of Countesswells, near Aberdeen, a leading authority on the subject, gave the toast of "Forestry," to which Colonel Sutherland, Assistant Forestry Commissioner for Scotland, responded. He said the Forestry Commission in Scotland, up to last month, had acquired 232,000 acres of land, of which, unfortunately, less than half was plantable. In the same period of six years they had actually planted 30,000 acres, while private landowners, through Government grants, had been enabled to plant other 36,000 acres, or a total of 66,000 acres of woodland added to the timber supply of Scotland.

The Chairman, in proposing "The Parent Society," told of the great progress it had made in the face of apathy and even of opposition. By means of excursions, meetings at home and abroad, and by forestry exhibitions, the society had kept the public interest in the country's woodlands from dying out altogether, and they reaped their ultimate reward in the establishment of a Departmental Commission on Forestry in 1902, followed later by the Forestry Commission and the inauguration of Lectureships, followed by Chairs of Forestry at Edinburgh and Aberdeen. The toast was jointly acknowledged by Mr. George Leven, forester, Bowmont Forest, Kelso (a Vice-President of the Society), and Mr. Robert Galloway, S.S.C., Edinburgh, Secretary of the Society.

Professor A. W. Borthwick, O.B.E., D.Sc., F.R.S.E., of the Forestry Chair at Aberdeen University, submitted the toast of "Kindred Societies," and other toasts were "The Northern Branch of the R.S.A.S.," and "The Moray and Nairn Foresters' Society."

A pleasing ceremony took place during the proceedings, when the Right Hon. Lord Forbes, of Castle Forbes, Aberdeenshire, presented Mr. George D. Massie, Advocate, Aberdeen, Secretary and Treasurer of the branch, with a gold watch as a token of respect and esteem from the members, and a silver tea service for Mrs. Massie. Lord Forbes said Mr. Massie was not only a most genial companion but a keen and knowledgable forester.

TRADE NOTES.

Mr. A. Hughes, general foreman for a considerable number of years with Messrs. R. Wallace and Co., Ltd., Tunbridge Wells, and late of Colchester, has taken over the management of Messrs. V. N. Gauntlett and Co.'s nursery, at Chiddingfold, Surrey.

After nearly twenty-two years' service as a representative of Messrs. Wm. Wood and Son, Ltd., Taplow, Mr. H. Joy, of Dene, Potters Bar, has just severed his connection with that firm. Mr. Joy, who is well-known to hundreds of gardeners chiefly in the south of England has taken this step chiefly because the loss of his wife renders it necessary that he should spend more time at home than the travelling life permits. He parts from the firm and his many gardener friends with keen regret.

A recent report of the Recreation Ground Committee of Newport (I. of W.), stated that the cost of horse hire, mower and repairs for the two years previous to the purchase of the Atco Motor Mower was £71 18s. 0d., and for the two years after the purchase of the Atco motor mower it was only £30 14s. 5d. A direct saving of over £30 was therefore effected, and even allowing £10 per annum for depreciation of the Atco, the cost would still be less than formerly. In 1923-4 the cost of horse and hand mowers averaged £36 per annum, and since then, that is, since the Atco came into service, the average cost of mowing had been £16 per annum. Messrs. Charles H. Pugh, Ltd., the manufacturers of the Atco motor mower consider £10 per annum for depreciation is quite unnecessarily excessive, owing to the service facilities that are provided by the manufacturers in order that Atco motor mowers shall not depreciate at anything like the rate suggested. Among recent purchasers of Atco motor mowers may be mentioned the Aston Villa Football Club. Also quite recently the Queen of Norway happened to see an Atco motor mower in service at Sandringham the house of Their Majesties the King and Queen in Norfolk and ordered an Atco motor mower to be dispatched to her residence in Norway. There can be no finer testimony to the efficiency of the Atco motor mower than the fact that it is used in the grounds of so very many prominent people, and if any reader would be interested to see the Atco motor mower demonstrated on his grass, a postcard addressed to the manufacturers will ensure immediate attention. There is no charge whatever made for such a demonstration, and no obligation is incurred. Applications stating the day and time convenient should be addressed to Chas. H. Pugh, Ltd., Whitworth Works, Tilton Road, Birmingham.

Any of our readers requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning *The Gardeners' Chronicle.*

Obituary.

J. T. Butterworth.—We regret to record the death, which occurred on May 31, of Mr. J. T. Butterworth, of South Framingham, Massachusetts, U.S.A., a well-known trade grower of Orchids. Deceased was a native of the north of England, and well remembered R. P. Percival, of Southport, after whom Cattleya Percivaliana is named. At South Framingham, Mr. Butterworth owned one of the oldest glasshouses in the United States, for it was constructed in 1848. It was in this old-time structure that he cultivated with conspicuous success a large batch of Miltonia vexillaria. Cattleya Percivaliana remained a favourite with deceased, and he cultivated a large number of this Orchid. Among numerous other Orchids, Mr. Butterworth had a fine collection of Zygopetalum Mackayi, the bluish flowers of which are much esteemed in the U.S.A. The interment took place on June 3.

David Ivey.—We regret to announce the death of David Ivey, who had been an employee at Caerhays since 1884. When Mr. T. C. Williams decided, in 1895, to take up the breeding of Daffodils as a hobby, he devoted a special piece of ground to their cultivation and placed it under the sole care of Ivey. That this selection was more than justified was proved by the wonderful flowers shown by Mr. Williams at the Truro Show before the War, in fact, Mr. Engleheart himself has often been heard to say that he had never seen better cultivation of Daffodils. Ivey's searching observation and unremitting care never allowed disease or pest to be in evidence. Eelworm and the Narcissus fly were not to be seen in that garden. Of latter years, Mr. Williams had given to him the outdoor propagation of shrubs and raising of seeds, in which he was most successful. He seemed to know better than others not only where, but when, to sow seeds and strike cuttings. He invariably kept slugs and mice under severe control. One of his greatest natural gifts was his complete sympathy with and unerring knowledge of the wants of a plant, which, combined with acute observation, and long experience, placed him among the finest outdoor cultivators of his day. He will always be associated with Escallonia Iveyanum, which received the R.H.S. Award of Merit in 1926, and narrowly missed winning the Cory Cup offered for the best hardy shrub of the year. Ivey detected this plant, a self sown seedling, among some evergreens where it had been overlooked by the many people who passed it daily! Our deep sympathy goes out to his widow and family and also to Mr. Williams who has lost a trusted employee and a valued friend.

Thomas Manning.—We learn with deep regret that Mr. Thomas Manning, for many years manager to the late firm of Messrs. James Veitch and Sons, passed away at his residence in Putney, on June 6, in his ninety-fifth year. The late Mr. Manning had been one of the auditors of The Gardeners' Royal Benevolent Institution and had been a supporter of its work for more than sixty years. The funeral took place on Thursday last in Brompton Cemetery.

ANSWERS TO CORRESPONDENTS.

Correction.—*F. L. L.* Owing to a printer's error, the material recommended as a specific for Botrytis was given as a two per cent. solution of calcium bisulphate. It should be calcium bisulphite. Calcium bisulphite is a solution, and, for the purpose described, it is sufficient to take one part by volume of the solution and forty-nine parts of water. The solution is relatively cheap, and is sold by the pound. If the Celery trouble is caused by Botrytis, calcium bisulphite will be useful, but it is possible that the damage is caused by some fungus such as Pythium, which is carried in the seed-bed. The only method of prevention is sterilisation of the soil either by heat or by means of a two per cent. solution of formaldehyde. If formaldehyde is used, the soil should be thoroughly soaked with it, covered with sacking for forty-eight hours, and then turned over several times before use. The soil should not be used if any smell of formaldehyde remains. It should be kept under cover and usually a month should elapse between the application of the formaldehyde and the sowing of the seed. This period, however, can be shortened if the soil is heated to drive off the formaldehyde.

Dendrobium plumtonense.—*S. J. B.* This Dendrobium is a hybrid between D. Cybele (var. nobilior) and D. nobile nobilius, and was first flowered in the collection of the late W. R. Lee, Plumpton Hall, Lancashire, in the year 1911. It is a member of the deciduous section of the genus and succeeds under the treatment usually afforded to D. nobile and its hybrids.

Fungus in Cucumber and Begonia Houses.—*H. C.* The fungus received is the Mycetozoon, Tuligo septica, sometimes called "flowers of tan." The yellow plasmodium of this species was much better known to gardeners in former times than now, when there were tan beds, but hardly any modern book of reference suggests methods of getting rid of it. The stage of the fungus as received was a burst sporangium showing a colossal number of smooth, round, violet spores; indeed, there were literally millions of them. Remove the sporangiums before they burst, and disinfect the immediate surroundings with sulphide of potassium.

Laurel Leaves Diseased.—*A. C.* The damage to the Laurel leaves is due entirely to the sharp frosts at the end of April.

Names of Plants.—*B. P., Claygate.* 1, Euonymus europaeus; 2, Prunus Padus; 3, Lycium chinense; 4, Smyrnium Olusatrum; 5, Vicia narbonnensis; 6, Asplenium bulbiferum; 7, Curculigo latifolia.—*C. M. G.*, Nemophila Menziesii variety.—*Swansea.* Crataegus punctata.—*M. C.* 1, Spiraea Van Houttei; 2, Rhodotypos kerrioides.—*G. D. A.*, 1, Euonymus radicans var. microphyllus; 2, Rhododendron racemosum; 3, Ledum palustre; 4, Polygala Chamaebuxus var. purpurea.

Tomatos Diseased.—*F. L. H.* Your Tomatos are affected by the disease known as "Stripe." This is a bacterial disease, usually contracted from the soil, but sometimes carried in the seeds. Plants which are growing too soft or which have a weak constitution are more susceptible than hard, strong plants. Nitrogenous fertilisers should be omitted for a time, and the plants should be dressed with sulphate of potash at the rate of two ounces to the square yard. One or two applications are usually sufficient to induce a healthy top growth on infected plants. Liquid manure makes plants very susceptible to Stripe, which is usually not very troublesome if the plants are fed with a well-balanced fertiliser containing a high proportion of potash.

Communications Received—C. W. M.—R. S. W.—A. J. M.—J. P.—W. L.—W. B.—W. A. T.—H. L.—W. M.—A. S. B.—G. H. T.

MARKETS.

COVENT GARDEN, Tuesday, June 7th, 1927.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d.	s. d.
Adiantum cuneatum per doz.	10 0	12 0
—elegans	10 0	15 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus	12 0	18 0
—Sprengeri	12 0	18 0
Aspidistra, green	36 0	60 0
Asplenium, doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Cacti, per tray —12's, 15's	5 0	7 0
Crotons, doz.	30 0	45 0
Cyrtomium	10 0	25 0
Erica persoluta, 48's, per doz.	24 0	30 0
Fuchsias, 48's, per doz.	15 0	18 0
Heliotropes, 48's, per doz.	15 0	18 0
Hydrangeas, pink, 48's, per doz.	24 0	36 0
—blue, 48's, per doz.	30 0	36 0
—white, 48 s, per doz.	24 0	30 0
—larger sizes, each	4 0	5 0
Marguerites, 48's, per doz.	12 0	18 0
Mignonette, 48's, per doz.	18 0	21 0
Nephrolepis in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	30 0	48 0
—60's	15 0	18 0
Pelargoniums, 48's, per doz.	12 0	15 0
—Zonal, 48's, per doz.	9 0	10 0
—Ivy-leaf, 48's, per doz.	12 0	18 0
Pteris, in variety	10 0	15 0
—large, 60's	5 0	6 0
—small	4 0	5 0
—72's, per tray of 15's	2 6	3 0
Roses, Polyanthas, 48's, per doz.	18 0	24 0
—Rambler, large plants, each	5 0	15 0
Spiraea, white, 48's, per doz.	21 0	40 0
—pink, 48's, per doz.	27 0	30 0
Stock, white, 48's, per doz.	12 0	15 0
—coloured, 48's, per doz.	10 0	12 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	6 0	8 0
cuneatum, per doz. bun.	4 0	6 0
Asparagus plumosus, per bun., long trails, 6's	2 0	2 6
med. sprays	1 6	2 6
short ,,	0 9	1 3
—Sprengeri, bun. long sprays	2 0	2 6
med. ,,	1 0	1 6
short ,,	0 6	1 9
Carnations, per doz. blooms	2 6	4 0
Coreopsis, per doz. bun.	3 6	4 0
Cornflower, blue, per doz. bun.	2 6	4 0
—pink, doz. bun.	3 6	4 0
Croton leaves, per doz.	1 9	2 6
Daises, white, large, doz. bun.	4 0	5 0
Ferns, French, per doz. bun.	10 0	12 0
Forget-me-not, per doz. bun.	4 0	8 0
Myrtle, green, per doz. bun.	1 6	2 0
Stock, double white, per doz. bun.	10 0	18 0
Gardenias, per doz. blooms	3 0	4 0
Gladiolus, Blushing Bride, per doz. bun.	15 0	18 0
—Peach Blossom, per doz. bun.	18 0	21 0
— The Bride, per doz. bun.	12 0	18 0
Gypsophila, white per doz. bun.	8 0	10 0
Heather, white, per doz. bun.	6 0	9 0
Hydrangea, white, per doz. bun.	36 0	42 0
—coloured, per doz. bun.	30 0	36 0
Iceland Poppies, per doz. bun.	2 6	3 0
Iris, Spanish, per doz. blooms—		
—blue	1 0	1 6
—yellow	1 6	2 0
—mauve	1 0	1 6
—white	1 6	2 0
Lapagerias, per doz. blooms	4 0	5 0
Lilium longiflorum, long, per doz.	2 6	3 0
—short, doz. blooms	2 0	2 6
Lily-of-the-Valley, per doz. bun.	30 0	36 0
Marigolds, per doz. bun.	5 0	6 0
Narcissus, per doz. bunch—		
—double white	9 0	10 0
Orchids, per doz.		
—Cattleyas	36 0	48 0
—Cypripediums	6 0	8 0
Paeonies, French, white, 6's, per doz. bun.	15 0	18 0
— — pink, per doz. bun.	12 0	15 0
Pinks, white	3 0	4 0
Pyrethrum, per doz. bun.—		
—double white	6 0	10 0
—single red	3 6	4 6
—single pink	3 0	4 0
Richardias		
—yellow, per doz. blooms	24 0	30 0
Roses, per doz. blooms—		
—Columbia	3 0	4 0
—Richmond	2 6	3 6
—Madame Butterfly	2 6	3 6
—Golden Ophelia	2 0	3 0
—Mrs. Aaron Ward	1 6	2 6
—Madame Abel Chatenay	2 0	3 0
Roses, per doz. blooms—		
—Hoosier Beauty	2 6	4 0
—Liberty	3 0	4 0
—Molly Sharman Crawford	2 6	3 6
—Premier	3 0	4 0
Smilax, per doz. trails	5 0	6 0
Statice sinuata, mauve, per doz. bun.	3 0	4 0
Stephanotis, per 72 pips	3 0	3 6
Stock, per doz. bun.—		
—double white	6 0	12 0
— — mauve	12 0	18 0
— — pink	12 0	18 0
Sweet Peas, in variety	6 0	12 0

REMARKS.—The demand for cut flowers has been fairly good during the past week. Scarlet and white blooms were most in demand for the Whitsun decorations. Carnations and Roses all advanced in price owing to an increased demand for these flowers from the Provinces. Prices for Lilium longiflorum remained as quoted last week, the supplies being equal to the requirements. Richardias (Arums) are now practically over for the season; a few spathes of the yellow kind are now obtainable. All Gladioli are now much improved in quality and they include a good selection of the Giant and Primulinus types. There is an abundant supply of Spanish Irises, Imperator, blue, being the most plentiful. The newest lines in this department are Pink Erigeron, Nigella (Love-in-a-Mist) and Gaillardias. More Pyrethrums have been on offer during the past week, the double white being most in demand. Doubtless prices for all these flowers will be easier during the next few days.

Fruit: Average Wholesale Prices.

	s. d.	s. d.
Apples, Australian—		
—Granny Smith	25 0	26 0
—Dunn's	15 0	16 0
—Cox's Orange Pippin ½-cases	22 0	35 0
—Jonathan	14 0	15 0
—King David	13 0	14 0
—Ribston Pippin	14 0	15 0
—Cleo	14 0	16 0
—Sturmer Pippin	16 0	17 6
Apples, New Zealand—		
—Cleo	15 0	18 0
—Cox's	—	32 6
—Delicious	14 0	16 0
—Dunn's	15 0	16 0
—Jonathan	15 0	16 0
Apricots, Spanish, per crate	5 0	8 0
—halves	6 0	8 0
Bananas	17 0	20 0
Cherries, French, per crate	5 0	8 0
Figs, per doz.	6 0	18 0
Grape Fruit— per case		
—Blue Goose	32 6	40 0
—Jamaica	32 6	35 0
Grapes, English		
—Hambro, per lb	2 6	5 0
—Muscats	8 0	15 0
—Canon Hall	7 0	12 0
Grapes, South African, per case		
—Almeria	8 0	10 0
—Raison Blanc	12 0	14 0
Lemons, Messina Boxes	12 0	20 0
—Naples, per case	20 0	26 0
Melons, each	4 0	7 0
Canteloup, each	5 0	8 0
Oranges, per case—		
—Jaffa	22 0	23 0
—Californian Navel	30 0	36 0
—Denia	24 0	30 0
—Murcia	25 0	30 0
Nectarines, doz.	10 0	30 0
Peaches, per doz.	8 0	30 0
Pears, New Zealand—		
—Winter Nelis	21 0	30 0
—W. Cole	16 0	18 0
—Josephine de Malines	8 6	10 0
Pears, Australian—		
—Winter Nelis	8 0	9 0
—Josephine de Malines	8 0	10 0
Pines, case	28 0	40 0
Strawberries (forced)—		
—Southampton, per chip	2 6	3 0
—special, per lb	5 0	8 0

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Asparagus—		
—Giant	12 0	16 0
—Worcester, extra special	6 0	7 0
—special	2 6	3 6
Beans, Guernsey	—	—
Worthing Forced	1 2	1 6
Beans, Madeira	3 0	4 0
Beets, per cwt.	5 0	6 0
Cabbage, per doz.	2 0	2 6
Carrots, per ½-bag	4 0	6 0
Cauliflowers—		
—English, per crate	2 0	4 0
Cucumbers, doz.	4 0	6 0
—Flats, 3, 3½, 4 doz.	14 0	17 0
Leeks, per doz.	2 0	2 6
Lettuce, round, per doz.	0 6	1 0
—long	1 0	4 0
Mint, forced, per doz.	2 0	4 0
Marrows, Forced, per doz.	9 0	12 0
Mushrooms		
—cups	1 6	2 6
—Broilers	1 0	1 6
Onions—		
Valencia	11 0	12 0
—Egyptian	12 0	13 0
Parsnips, per cwt.	4 0	4 6
Peas, Forced, per lb.	0 4	0 9
—French, per bag	4 0	6 0
—English, ½-bush.	6 0	8 0
Potatos—		
—King Edward— ton	180s.	200s.
—others, ton	120s.	150s.
Potatos, New—		
—Guernsey per cwt.	18 0	20 0
—Spanish, cwt.	14 0	16 0
—St. Malo	16 0	18 0
—Jersey	—	20 0
Radishes, per doz.	1 0	2 0
Rhubarb, natural	2 0	3 0
Savoys, per tally	8 0	12 0
Tomatos, English—		
—pink,	7 0	8 0
—pink and white	7 6	8 0
—white	6 0	6 6
—blue	6 0	6 6
—Canary Island	16 0	22 6
Turnips, per cwt	4 0	4 6

REMARKS.—Trade during the week preceding the holiday was good and no doubt the promise of fine weather helped matters considerably. English forced Grapes are more plentiful and prices have reached an easier level. Strawberries are also cheaper, due to larger consignments. Peaches, Nectarines, Figs and Melons are a good trade, although their prices are rather high. Cherries from France are selling well, if in sound condition. Apricots from Spain increase in quantity almost daily, but the quality so far this season is poor. Apples from Australia and New Zealand are selling satisfactorily and generally are in good condition. A few Grapes are arriving from South Africa and some Pears from Australia; both are popular with buyers. Tomatos sell fairly well and supplies are heavy. The Cucumber trade is steady and prices are holding well. Mushrooms are still in heavy supply, but their prices are fairly good. Forced Peas are a drag on the market now that outdoor Peas are available. French Beans are quoted lower after a spell of comparatively high prices. New Potatos from Jersey, France and Spain are a rather better trade for the moment. Salads are not in such demand, as might be expected, and their prices are, on the whole, low. A moderate business is being done in green vegetables.

GLASGOW.

The conditions prevailing in the cut flower market were more encouraging during the past week, and as business reflected a better tendency, prices made some improvement in places. Ordinary English Irises sold at 4d. to 7d. per bunch, special Imperator, King of the Whites and King of the Yellows, 1/- to 1/3. Pyrethrums realised 2d. to 4d. per bunch; Sweet Peas, small, 5d. to 7d. medium, 7d. to 10d., and large, 10d. to 1/-; Gladiolus The Bride, fetched 7d. to 1/- (12's), Prince of Wales, red and salmon, 1/6 to 2/- (6's); double white Narcissus 6d. to 7d.; Anemones, 2d. to 6d.; Marguerites, 1d. to 3d.; Lilium longiflorum (Harrissii), 3/- to 3/6; Carnations 3/6 to 4/6 per dozen; pink Roses, 3/- to 3/9 per dozen, red and white Roses (small), 2/- to 2/6.

Bedding plants continue to be plentiful. Gladioli were worth 1/3 to 2/6 per box; Lobelia, 2/- to 2/6; Stocks, Asters and Antirrhinums, 1/6 to 2/- per box; Violas 2/- to 2/6 per dozen; Coltness Gem Dahlia, 2/- to 4/- per dozen, and Paul Crampel Pelargoniums, 6/- per dozen.

The fruit market was quietly steady. Cheddar Strawberries made 2/- to 2/6 per lb., French, 1/6 to 1/8; Cherries realised 14/6 half-bushel; Melons, 4/6 to 5/- each; Gooseberries, 4d. to 6d. per lb.; Apricots, 8/- to 9/- per crate; Grape Fruit, 32/- to 36/-, Blue Goose brand, 40/- to 42/-; New Zealand Apples (Jonathan and Delicious), 16/- to 17/- per case; Palermo Lemons, 16/- 300's, and Naples Lemons, 27/6. The prices of Oranges were unchanged. Tomatos were cheaper on increased supplies; Scotch Tomatos made 1/- to 1/1 per lb., English and Guernsey, 10d.

In the vegetable section Cucumbers realised 4/- to 7/- per dozen; Cauliflowers, 4/- to 4/6; Lettuces, 3/6 to 4/- per crate; Madeira Beans, 6/6 to 7/- per box; and Teneriffe Potatos, 15/6.

NEW HORTICULTURAL INVENTIONS.

THESE particulars of new Patents, of interest to readers, have been selected from the official *Journal of Patents*, and are published by special permission of the Controller of H.M. Stationery Office.

LATEST PATENT APPLICATIONS.

12,832.—Beesley, H. — Seed-planting implements. May 13.
12,388.—Holsworthy, H. F.—Insect killer. May 9.
12,479.—Jones, A. E. M.—Machine for thinning young plants of Sugar Beet. May 10.
12,582.—Murray, J. L. H.—Heating of travelling greenhouses, etc. May 11.
12,513.—Patton, H. S.—Insecticide for red spider. May 10.

SPECIFICATIONS PUBLISHED.

270,404.—Marden, G. Y.—Plant or fruit protecting means.
270,454.—Bamford J., and Bamford, C. J.—Mowing and reaping machines.
270,470.—Walker Ltd., W. & F., and Freestone, H. T.—Article for use as an insecticide, anti-pest, for disinfecting, deodorising, or sanitary purposes.
270,565.—Jensen, H. R.—Mole-drain plough.
270,064.—Cook, T. W.—Elevators for stacking cut crops.

Printed copies of the full published specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2., at the uniform price of 1s. each.

Abstract Published.

Seed Disinfectants.

Patent 267,968 describes a method whereby seeds, including seed Potatos, are disinfected before planting by immersing them or sprinkling with a colloidal solution or suspension in water of an active disinfectant together with a colloidal material, the inventors being Messrs. E. I. Du Pont de Nemours & Co., of Wilmington, Delaware, U.S.A. Inert non-colloidal diluents or coating materials may also be added. According to examples suitable mixtures are:—mercurized *p*-nitrophenol and kaolin; hydroxy mercury chlor phenol, bentonite, and calcium sulphate; corrosive sublimate, bentonite, and calcium sulphate; copper carbonate and bentonite; *p*-formaldehyde, bentonite, and calcium sulphate; mercurized toluidine, bentonite, and calcium sulphate. Other disinfectants referred to are mercurized derivatives of phenol, cresols and naphthols; other colloids are potters' clay, gelatin, glue, casein, and agar-agar; other inert diluents are fuller's earth, diatomaceous earth, hydrated lime, calcium carbonate, and dolomite. Seed Potatos may be treated immediately after cutting. Reference is made to a known preparation made by precipitating a solution of an organic mercury compound containing a protective colloid with an organic solvent which is mixable with water, and to a preparation made by mixing thiourea with a protective colloid in the dry state and then gradually adding water to produce a colloidal suspension.

THE
Gardeners' Chronicle
No. 2112.—*SATURDAY, JUNE* 18, 1927.

CONTENTS.

Alpine garden—
  Silene Hookeri ... 428
Auricula inflorescence, a large 440
Berlin Parks Founder, memorial to ... 425
Black Currants, inspection of 423
Bowling greens, sulphate of ammonia and 436
Cherries, Japanese ... 424
Chyngton Estate ... 424
Codlin Moth, the ... 439
Chrysanthemum Congress in Paris ... 424
Corsican horticulture 434
Cultivated plants, the origin of 423
Dahlia coronata ... 439
Eton, memorial garden at 425
Experimental farm to be sold 425
Foreign correspondence—
  International Horticultural Congresses 440
Fruit register—
  Apple Belle de Boskoop 439
  Pear Marguerite Marillat ... 439
Flower garden, the—
  Eryngium alpinum 428
  Euphorbia epithymoides 428
  Spiraea Filipendula 428
" Gardeners' Chronicle" seventy - five years ago 425
Gardens and Queen Alexandra memorial 423
" Gartenschönheit " for May 425
Gladiolus, the... ... 435
Hardy flower border—
  Inula glandulosa ... 428
  Lupinus 428
  Paeonia Veitchii ... 428
Indoor plants—
  Cissus discolor ... 431
  Eomecon chionantha 431
Iris garden—
  Iris Gagus 429
  Iris Margot Holmes 429
  Irises at Kew ... 428
Java Coffee 424
Laburnum Adamii ... 439
Leipzig, fruit exhibition in 425
Lilies, raising, from seed 435
Market fruit garden, the 437
Mesembryanthemum 430
Obituary—
  Eckert, C. 442
  Hayes, T. R. ... 442
  Vaupel, F. 442
Orchid notes—
  Dendrobiums, evergreen 431
  Orchis foliosa × O. maculata... ... 431
Onions and Cabbages, trials of 425
Parks and gardens, public 440
Paeony disease research 424
Pear, an immune ... 424
Potato crop, the ... 423
Reaping machine, inventor of 424
Rose garden, the—
  Some good varieties 438
Seasonal pests and their control ... 436
Slade, Sir J. B. ... 424
Societies—
  Guildford and District Gardeners' ... 441
  Manchester and North of England Orchid 440
South-west Scotland, garden notes from... 429
Strawberry plants, deterioration of ... 440
Trees and shrubs—
  Clianthus puniceus magnificus ... 430
  Conifers at Stoke Park 430
  Veronica Hulkeana 430
Vegetable garden—
  Hoeing between crops 439
Walnut leaf extract as an insecticide ... 438
Ward, F. Kingdon, ninth expedition ... 432
Watercress 440
Week's work, the ... 426

ILLUSTRATIONS.

Dobbie and Co.'s Sweet Peas at Chelsea 439
Harrow for bowling greens 437
Iris Gagus 429
J. Carter and Co.'s Flowering Plants at Chelsea ... 441
Meconopsis in Seinghku Valley 433
Nung girl porters 434
Orchis foliosa 431
Paeonia Veitchii 425
Slade, Sir James B.... 424
Tibetan huts 432
Upper Seinghku Valley, view in... 433

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 60·8°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, June 15, 10 a.m. Bar. 30·3. Temp. 62°. Weather, Fine.

The Origin of Cultivated Plants.

SINCE the classic work of de Candolle there have been few works of importance dealing with the origins of cultivated plants. Last year, however, Professor Vavilof, published* a comprehensive contribution to the subject which is remarkable not only for the novel method which he uses in his quest of origins, but also for the practical conclusions which he reaches. Professor Vavilof sets out from the now generally accepted view—which he himself has done so much to elaborate—that a species is or may be composed of a series of forms which stand in some measure in regular relation with one another. These forms have, of course, each a certain range of distribution, and the species of which they are members has equally, of course, a range so wide as to cover all the individual sub-species. Applying these ideas to the problem of origin, Vavilof concludes that the simple methods which de Candolle employed are by no means satisfactory. To infer a place of origin of a given kind of cultivated plant from the occurrence in a certain locality of wildings of that species, or of wild, related species, is of doubtful validity, for both the cultivated and the wild plants may have come into that district from another. In illustration of simultaneous migration of cultivated and wild members of a species, Professor Vavilof points out that large numbers of cultivated plants—those which in his classification are placed under the category of secondary crops—are plants which were originally weeds. They introduced themselves as weeds into the Wheat, or other primary crop, and, long disregarded or regarded as a nuisance by primitive cultivators, they at last established themselves in their estimation as crops worth cultivating. Rye offers an excellent example. It constantly turned up as a wild plant in Wheat crops, and the farmer tried to get rid of this weed of the Cornfield. To this day numerous varieties of Rye appear among the Wheat-fields of South-west Asia, and they persist—tolerated by the cultivator because they retain the power to shed their " seeds "—being, indeed, only distinguishable from cultivated varieties by this feature and by the brittleness of the rachis. Hence the geographical origin of a given variety of Rye is to be sought in the place whence the Wheat which it accompanies and has shadowed, originally came. Professor Vavilof subdivides cultivated plants into primary—those which were cultivated in very ancient times; and secondary, those which were the weed companions of the primary crops. Examining the primary crops in detail, the author concludes that the most important food plant, Wheat, is composed of some thirteen Linnean species which fall into three groups : soft Wheat (Triticum vulgare) with twenty-one chromosomes ; hard Wheat (T. durum) with fourteen; and one-grained Wheat (T. monococcum) with seven chromosomes. He believes that the centre of origin of soft Wheat is to be found in the mountains of South-west Asia, and if so, it is there that the explorer must look for new forms of T. vulgare. Hard Wheat, he holds, has its origin in the Mediterranean region—Algeria, Greece and Abyssinia, and T. monococcum in Asia Minor. Thus the Wheats of to-day have, on this view, three centres of origin, and the author holds that it is very doubtful whether these three kinds ever had a common ancestor. The origin of cultivated Wheat may, he thinks, well have been multiple and not simple. Secondary crop-plants present a less insoluble difficulty. Thus, in Hemp, wild plants showing transitions toward the cultivated form grow in association with the latter. Formerly regarded as renegades from the ranks of the cultivated, they are now to be looked upon as candidates for cultivation, differing only from the accepted forms by their more ready mode of seed distribution. Cannabis sativa is, moreover, a plant of rich soil and would therefore, like the Nettle, edge up into ground beside households where organic refuse is to be found, and in this way would become a follower of human migrations. In the Altai, for example, the whole process of " civilisation " of the Hemp may be traced. There are wild plants ; self-sown wildings neighbouring on habitations ; self-sown plants used for Hemp-making purposes ; and plants grown as a cultivated crop. The last soon lose their wild self-sowing habit in the course of cultivation. Professor Vavilof recognises five chief centres of origin of our cultivated plants, in each of which the latter may still be seen in most numerous variety and diversity of form. These centres are (1) South-west Asia, the mountains of which were the nursery of the soft and dwarf Wheats, Rye, small-seeded Flax, small-seeded Peas, Lentils, Horse Beans and Asiatic Cotton ; (2) South-east Asia, including the mountains of China, Japan, Nepal, etc., which give us naked Oats, hull-less Barley, Millet, Soy Beans, many cultivated Cruciferous plants and several of our fruit trees ; (3) the Mediterranean littoral whence come hard Wheat, many species of cultivated Oat, large-seeded Flax, large-seeded Peas, Horse Beans, Lentils, Beets, and many of our vegetables and fruit trees ; (4) Abyssinia and adjacent mountains, from which come sundry Barleys and Wheats and certain races of Peas and Oats ; and (5) Mexico and Peru, to which lands we were indebted for the Potato, Jerusalem Artichoke, Maize, Tobacco, Sunflower and American Cotton. Multiple and diverse thus are the origins of our cultivated plants—no less multiple and diverse than those of civilised races of mankind. Although the primary origin of a species is lost beyond retrieving in the "dark backward and abysm of time," something may be done, as Vavilof has shown, to pick up traces of the early recruitment of wild plants into the ranks of the cultivated ; but the work is difficult and certainly is doubtful. Only by a more detailed exploration of the earth and a more profound study of species may surer knowledge be gained.

Gardens and Queen Alexandra's Memorial.—We are pleased to hear that considerable success already attends the Queen Alexandra Memorial scheme. In some instances the number of persons visiting a garden on the appointed day far exceeds expectations. At Ham House, for instance, where it was thought that perhaps a hundred visitors might avail themselves of the opportunity of inspecting the beautiful Petersham gardens of the Earl of Dysart, no fewer than 922 came in one day last week, so that £46 2s. has been handed to the fund.

Harrogate Flower Show.—A horticultural exhibition will be held in connection with the annual show of the local agricultural society of Harrogate, which is one of the finest shows in the north of England. Harrogate is a well-known " floral centre," and possesses large public parks and gardens. The Society is affiliated to the North of England Horticultural Society.

The Potato Crop.—According to the Monthly Agricultural Report of the Ministry of Agriculture, the night frosts of May were generally not severe enough to cause much damage to Potatos, and early varieties which were cut down by the sharp frosts at the end of April recovered fairly well. Digging will, however, be delayed in consequence. The very early Cornish crops are light, having suffered from frosts and the May drought. Main crops were planted later than usual this year in most cases, and in some districts planting is not yet completed. Heavy land has been difficult to get into condition for planting. Crops have come up slowly, but where up they appear fairly regular. It would appear that over the whole country the acreage of Potatos is very much the same as last year.

Inspection and Certification of Black Currant Bushes.—The Ministry of Agriculture and Fisheries, on the recommendation of its Horticultural Advisory Council, proposes to set up a voluntary scheme of inspection and certification of stocks of Black Currant bushes intended

---

Bulletin of Applied Botany and Plant Breeding, Leningrad, 1926, Vol. XVI, No. 2, p. 248. See *International Review of the Science and Practice of Agriculture*, No. 2, March, 1927.

for sale. Stocks will be inspected on application, and certificates will be issued for those which are found to be true to type, and also apparently reasonably free from reversion. The issue of a certificate will not imply that the stock to which it relates was found to be free from all disease, but no certificate will be given for any stock which is obviously infested with Black Currant mite or is otherwise obviously unhealthy at the time of inspection. Growers who wish to avail themselves of these facilities should make application to the Secretary of the Ministry, 10, Whitehall Place, London, S.W.1, before the 20th June. A fee of 7s. 6d. per 1,000 bushes will be charged for the inspection (fractions of 1,000 will be charged as 1,000), with additional fees of 1s. for the certificate and 3d. for each copy certificate.

Chyngton Estate.—There is now said to be a possibility of preserving the Chyngton Estate, Sussex, which adjoins the Seven Sisters site, for the nation in perpetuity. The trustees of the late Lord Chichester's will, having learnt within the last few days that there is a fair possibility of someone coming forward to purchase on terms which will preserve the essential features of the property, have decided to withdraw it from the market. It was to have been offered for sale on June 13.

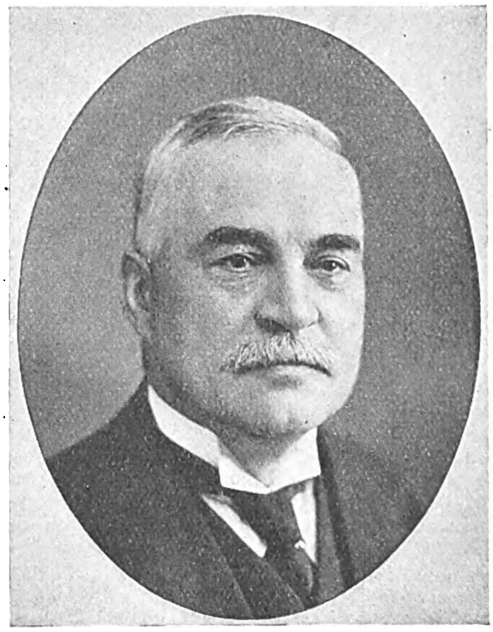
Chrysanthemum Congress in Paris.—The twenty-seventh annual congress of the French Chrysanthemum Society will take place in Paris from the 26th to the 28th October, and has been arranged to coincide with the important Horticultural Exhibition to be held in Paris at the same time. A number of questions interesting to Chrysanthemum growers will be discussed, and it is expected that the three days of Congress will be well filled.

An Immune Pear.—Mr. E. H. Wilson, of the Arnold Arboretum, mentions in the *Bulletin* of the Arboretum, a Chinese Pear species which promises to be of great value to American growers on account of its being practically immune to Pear blight. It is known as Pyrus Calleryana, and is a tree of variable size with considerable diversity in the shape of the foliage. It is found in a wild state from Southern Japan and Korea throughout a great part of China. The flowers, which are borne in rounded clusters, are small, with white petals and prominent pink-anthered stamens. The fruit is brown, and about the size of a garden Pea. It was introduced into America through seeds sent to the Arboretum by Mr. Wilson in 1907; it has since grown rapidly, and for several years past has flowered and fruited each season. Many seeds have been sent out for the purpose of raising plants for use as stock on which to graft garden Pears, and if its immunity to Pear blight be maintained, the species will prove a very valuable introduction.

Paeony Disease Research in America.—At the annual meeting of the American Paeony Society, held in New York, the Secretary announced that a plan was on foot for the establishment of a research fellowship at Cornell University to provide for investigation into the diseases of the Paeony. It was proposed to conduct a series of studies and experiments to cover a period of four years, entailing an expense of approximately five thousand dollars to the Society, the facilities which would be offered by Cornell University being calculated at a like sum. The matter, however, was referred to a Committee to consider the whole subject of research.

Japanese Cherries.—The *Bulletin of Popular Information* of the Arnold Arboretum, Harvard University (May 16, 1927), states that the double-flowered Japanese Cherries are principally derived from two species, Prunus serrulata and its varieties, and P. lannesiana. The latter is indigenous to the warmer districts of Japan, and its derivatives are not quite hardy in the Arboretum. The greenish-yellow Ukon and the green-striped grandiflora are descended from P. lannesiana, and there are many others, some bearing large, single or double white blossoms, others pale pink or almost white, all of which are fragrant. The Japanese have a great many forms of P. serrulata sachalinensis, which is known in New England as the Sargent Cherry, but for all practical purposes they may be reduced to half-a-dozen. Albo-rosea, flushed pink changing to white, is one of the best, and so is Fugenzo, pink; then there are Kirin; the late-flowering, handsome Kanzan; Shogetsu, pale pink; and Horinji, of a more definite pink hue.

Sir James B. Slade.—In our last issue we referred, on page 405, to the well-merited honour of knighthood which has recently been conferred on Alderman James B. Slade, of the firm of Messrs. Protheroe and Morris, city auctioneers, whose portrait we have pleasure in reproducing on this page. Sir James has been connected with his firm for nearly fifty-five years, and has been especially identified in the minds of horticulturists with the important sales of nurseries and nursery stock which are a feature of the Cheapside auctioneers. He is an Alderman of the Essex County Council, of which he has been a member for nearly thirty years, and is also a Justice of the Peace for the County. He was a member of the Urban District Council of Leyton for twenty-five years, retiring in 1920. Upon the granting of a Charter of Incorporation to Leyton in 1926, Sir James was chosen to be the Charter Mayor, and was also elected the first Mayor of the new Borough, a position he still occupies. His firm has been associated for nearly one hundred years with Leytonstone, which is now included in the Borough of Leyton, and which Sir James has seen grow from a suburban village to a town of 130,000 inhabitants. It gives us great pleasure to congratulate him on the honour and distinction he enjoys as a direct result of his many years of honourable and unremitting activity in the cause of horticulture and in public service.



SIR JAMES B. SLADE.

Australian Fruit Imports.—The Empire Marketing Board states that during the season the imports of Australian Apples to this country have been 30,000 cases, and New Zealand about 65,000 cases, below the estimated quantities. The total for the season, which is now almost closed, has amounted to 1,221,156 cases and 7,322 half cases from Australia, and 434,932 cases from New Zealand.

Inventor of the Reaping Machine.—The centenary of the invention of the reaping machine by the Rev. Dr. Patrick Bell, was commemorated on June 12 in Carmylie Parish Church, Forfarshire, of which the inventor was minister from 1843 till his death in 1869. The service was conducted by the Very Rev. Dr. Norman McLean, of Edinburgh, Moderator of the Church of Scotland. He said that he could imagine no man who had given so much to the world as Dr. Bell. Dr. Bell was wholly disinterested. He might have been a millionaire, but he never took out a patent for his invention; he left it for humanity to use.

Sir Daniel Hall.—We learn that Sir Daniel Hall, Director of the John Innes Horticultural Institution, has resigned the post of Director-General of the Intelligence Department of the Ministry of Agriculture—which he has held since 1920—but will continue to act as Chief Scientific Advisor and Chairman of the Research Council of the Ministry. We published in our issue of August 14, 1926 (p. 121) some account of Sir Daniel's activities in the service of horticulture, on the occasion of his taking up the post of Director of the John Innes Institute.

Java Coffee.—The *Journal of the Royal Society of Arts* for May 27 publishes an interesting article on the decline of Coffee-growing in Java. The so-called "Java Coffee"—Coffea arabica—was successfully introduced into Java about 1699. This type has few qualities of resistance, and when the leaf disease known as Hemileia vastatrix appeared in Western Java, and spread gradually over the island, many plantations were completely destroyed. To-day there are only a few plantations producing the genuine, original coffee, and these are located at an altitude of between 3,000 and 4,000 feet in order to escape the ravages of the pest. The type now most commonly grown in Java is C. robusta, which was introduced in 1900, and was found to be resistant to the leaf disease, although it has, in its turn, fallen a prey to a "Borer" known as "koffiebessenboeboek," which appeared in Western Java about twelve years ago. Coffea arabica is still grown in considerable quantities in the outer possessions of Sumatra, Celebes, Bali, and Timor, where the soil and climate are the same as on the island of Java. The total commercial production of Coffee on the island and in the outer possessions is said to have dropped to about fifteen-and-a-half million pounds, as against about 175 millions in 1879.

The Paris Museum of Natural History.—The Natural History Museum of Paris is situated in the "Jardin du Roy" and was founded in 1635, so it is of considerable antiquity. The garden is now usually called the "Jardin des Plantes," and its history is bound up with the lives of the botanists who practised there, such as de Jussieu, Brongniart, Thouin, Decaisne, and Van Tieghem. There are nineteen departments in the Museum, besides a chair of organic chemistry and one of applied physics. In the "Galerie Publique de Botanique," bordering on the Rue de Buffon, are paintings and wax reproductions of exotic plants and fruits, types of different forms of fruits and seeds, information on Rubber and the principal vegetal products, preserved plants, photographs giving views of the deserts of Mexico and of South-west Africa, and some vegetable remains found in ancient Egyptian tombs. In the same gallery are wax reproductions of most of the French Mushrooms, and a very interesting collection of fossil vegetable remains grouped in two series, the one following the botanic classification, and the other arranged according to the strata in which the fossils were found. A large collection of specimens of French and foreign woods has had to be put, for want of room to display it, in a part of the Museum to which the public is not admitted. The department of Phanerogamy, which is over the Public Gallery, possesses herbaria which are without doubt among the most interesting in the world; there are nearly 25,000 specimens, and many of them are historic, some dating back to 1558. The Cryptogamic department is at 63, Rue de Buffon, and is devoted to cellular cryptogams (Mosses, Algae and Mushrooms) and to the study of fungous diseases. Here also there are valuable herbaria, in particular those of Montagne, Bornet, Thuret, Cardot, F. Camus, Hue and Gomont. Each autumn a show of Mushrooms and Fungi is held, which always attracts a large number of visitors. The department of Organography and Vegetal Physiology is at 61, Rue de Buffon; here biological and anatomical researches are conducted, and there is a collection of nearly 33,000 microscopic specimens covering nearly all genera of Phanerogams and vascular Cryptogams. The Cultivation Department, housed at the same place, takes charge of the preservation, hybridation, and study of living plants, and also covers the introduction and distribution of useful or ornamental species, and the provision of fresh material for researches. The collections of plants comprise about 23,000 species, including plants in the open air and under glass. During the war, the collections which were formerly housed in the great Winter Garden, had to be sacrificed, in particular some beautiful Cycads. The houses are not now open to the public, but they still contain very rich collections of Succulent plants, Bromeliads, Aroids, and other exotic subjects. The open air plants comprise the Fruticetum (useful and ornamental shrubs) classified according to Bentham and Hooker; a plot of economic and medicinal plants arranged according to their uses; a botanical garden showing the classification of Brongniart, already superseded; and beds where the species, varieties, and hybrids considered the best for ornamental purposes of Tulips, Hyacinths, Irises, Gladioli, Pelargoniums, Chrysanthemums, Roses and other hardy plants. The trees are to be found in the Labyrinths, in the Botanic Garden, along the walks, and in the Menagerie; but as the present quarters are somewhat cramped, and the air is not so pure as in former years, a piece of ground at Chèvreloup, Versailles, 140 hectares in size, has been secured, to which the trees are being transferred. Many of the trees are of great age; for instance, a Robinia Pseudacacia, planted in 1636; Acer creticum, 1702; Sophora, 1747; and Cedar, 1734. The study of the collections and of the best methods of cultivation, hybridation, selection and grafting necessitates a small experimental garden, with a laboratory and herbarium. The Department of Cultivation maintains relations with over 600 Botanic Gardens and 150 private garden owners. It has published, since 1841, an annual catalogue of seeds available for exchange, and in 1926 nearly 12,000 packets of seeds were distributed. Before the war, it was the practice to cultivate useful plants with a view to their introduction into the Colonies; in this way Coffee was introduced to Martinique in 1720, and Vanilla to Reunion in 1817; but now exchanges for overseas countries are limited to buds and grafts, living plants being only sent to French or European correspondents.

Trials of Onions and Cabbages.—The Royal Horticultural Society will, during the coming season, carry out a trial of autumn-sown Onions and Cabbages. Seedsmen and growers are invited to send a packet of each variety of these two vegetables which they desire entered for the trials, to The Director, R.H.S. Gardens, Wisley, Ripley, Surrey (from whom the necessary entry forms may be obtained), to reach him on or before June 30, 1927.

Fruit Exhibition in Leipzig.—The local Fruit Growers' Society of Leipzig is to stage a fruit show in the town from the 8th to 11th October, 1927. Besides examples of the best fruits there will be exhibits of all kinds of implements, etc., used in fruit-growing.

Experimental Farm to be Sold.—About five years ago, Sir Frederick Hiam presented to the National Institute of Agricultural Botany a holding of 355 acres, about two miles from St. Ives, to be used for growing seed corn and demonstrating improved methods of agriculture. The land was farmed by Sir Frederick on behalf of the Institute and is in a high state of cultivation. It has, however, been decided by the authorities of the Institute to sell the farm, and it is to come under the hammer on June 25, at Cambridge.

Memorial to Berlin Parks Founder. — On May 27, memorial celebrations, at which many representatives of municipalities and horticultural societies were present, took place in Berlin in honour of the founder of the Berlin public parks, Herr Meyer. The present Parks Director, Herr Erwin Barth, placed a wreath of Laurel, with the arms of Berlin, on the memorial. In his speech, Herr Barth recalled that Meyer was one of the greatest of German landscape gardeners; his chief monuments in Berlin were the Humboldthein and the Treptower Park, and it was due to his enterprise that for the first time playing fields were established in Berlin parks.

Memorial Garden at Eton.—In memory of the late Mr. H. E. Luxmoore, for many years an assistant master at Eton College, a fund has been raised by Old Etonians to preserve the garden cultivated by the deceased in its present condition. The land comprising the garden is the property of the Windsor Corporation, and the Council have granted a lease of ninety-nine years at an annual rental of £32.

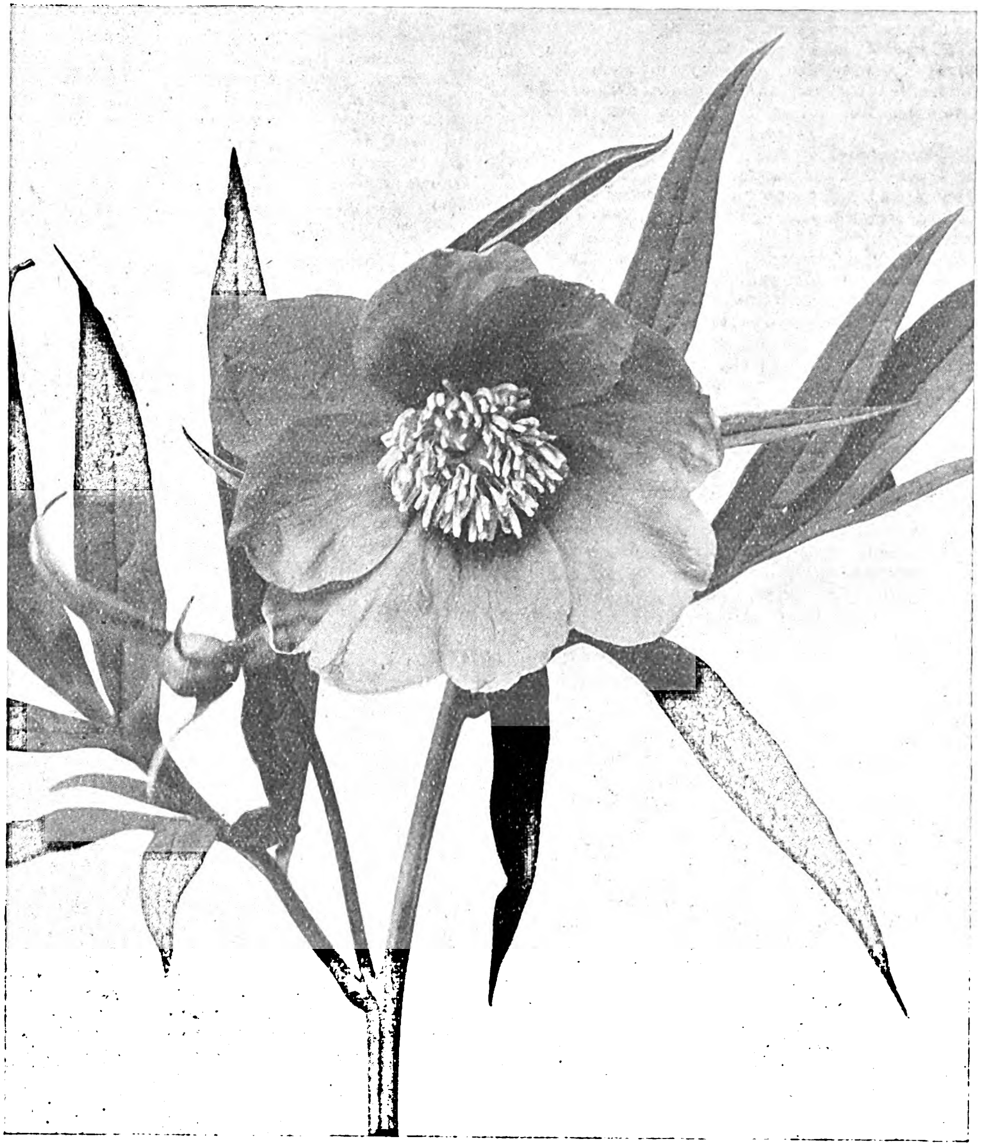


FIG. 205.—PAEONIA VEITCHII.

(see p. 428).

"Gartenschönheit" for May.—The May number of our German contemporary, *Gartenschönheit*, contains as a frontispiece a couple of well-coloured plates of Azalea Arendsii and Rosa glauca rubiginosa forma Dingleri. A whole page Supplement in sepia tones represents Cornus florida, and two coloured garden pictures show a gay children's garden designed by a Cologne firm, and late spring bedding in the Town Park in Hamburg. A sympathetic article on children's gardens by Georg Liebsch, an account by P. Landau of Germany's oldest garden-poem (written in Latin about 827, and first printed in 1510), and a well-illustrated description by Franz Lipp of wild flowers in America, are among some of the other contents of an attractive issue.

Appointments for the Ensuing Week.—Monday, June 20: International Commercial Horticultural Conference at Geneva (six days); Harrogate and District Horticultural Association's meeting. Tuesday, June 21: Royal Horticultural Society's Committees meet (two days). Wednesday, June 22: Wadhurst Gardening Association's show; Southampton Royal Horticultural Society's show (two days). Saturday, June 25: Wallington Horticultural Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Rhubarb Wine.*—To make this, wait till the Rhubarb is ripe, at the end of June, or beginning of July. Cut it into thin slices, about 8 lbs. to a gallon of boiling water; cover it and stir it daily for a week, then strain it through a cloth, and add 3 lbs. of sugar to each gallon, which, at 3d. per lb., makes a cost of about 1/- per gallon (loaf-sugar, however, is best). It may then be casked up, or put into large stone bottles, and in six months it will be delicious. *Hardy and Son, Maldon. Gard. Chron., June* 19, 1852.

The Week's Work.

THE ORCHID HOUSES.

By J. T. Barker, Orchid Grower to Lady Leon, Bletchley Park, Bletchley, Bucks.

Peristeria elata.—This stately Orchid is known as the Dove Orchid, and is the most popular member of its genus. The plant is a strong grower of terrestrial habit and requires a compost of a more substantial nature than most Orchids, It is usual to repot this Orchid early in the spring. so soon as new growth commences. After they are repotted the plants should be watered very carefully until the new roots have made considerable progress, as there is a danger of the pseudo-bulbs rotting if water is used too freely.

Compost.—Two-thirds well-rotted, turfy loam, and one-third fibrous peat mixed with thoroughly decomposed, dry cow manure, provides a most suitable compost. Ample drainage should be ensured by half filling the pot with broken crocks. The compost, having been warmed, should be placed to within an inch of the rim of the receptacle. Pot the plants moderately firmly; the base of the leading pseudo-bulbs should rest on the top of the rooting-material and not be buried in it. When in full growth Peristerias require ample supplies of water at the roots, and especially when the pseudo-bulbs are approaching completion; an occasional watering with weak liquid manure is beneficial to the plants. When the pseudo-bulbs are perfectly matured, the amount of water should be gradually reduced until, in winter, only sufficient to keep the pseudo-bulbs plump will be required. Peristeria elata should be grown in a light position in the warm Cattleya house, or in a similar warm structure, all through the year. Black rot or spot disease, which sometimes attacks the pseudo-bulbs, is usually caused by an excess of water, in conjunction with a low temperature during the plants' resting season. Peristeria cerina and P. pendula are both inferior to P. elata as horticultural plants, but are worthy of a place in large collections where room can be found for them.

Acineta.—The three or four members of this genus are developing their inflorescences, and need extreme care, for if the plants receive too much water at this stage the spikes may turn black and drop. Like Peristerias, Acinetas are robust plants, with large pseudo-bulbs, and large, plaited leaves, they produce a stout many-flowered inflorescence that is more or less pendulous. These Orchids are natives of tropical America, and Southern Mexico, therefore they require a high temperature, such as is maintained in the East Indian house. On account of their pendulous inflorescences they are best suspended when in bloom. In other respects their cultural requirements are the same as for Peristerias and other allied, terrestrial Orchids.

Oncidiodas.—The different bigeneric hybrids of these interesting Orchids of which a member of the Cyrtochilum family of Oncidium is a parent, will succeed under precisely the same conditions as those advised for Oncidiums. The best-known members are O. Cooksoniae, O. cinnabarina, O. Stuart Low, O. McBeanianum and O. hybridum.

THE KITCHEN GARDEN.

By R. H. Crookford, Gardener to The Rt. Hon. Lord Wavertree, Horsley Hall, Gresford, N. Wales.

Cauliflowers.—Make provision to maintain a succession of these vegetables by planting suitable varieties, which follow in turn, until quite late in the season, when Broccoli, such as Michaelmas White and Autumn Protecting, should be available. The ground should be well manured for both Cauliflowers and Broccoli, which mature before winter sets in. Care should be taken that these vegetables do not suffer from lack of moisture during dry weather or the heads will be small. A liberal mulch should be applied along the rows, especially on light soils, while copious supplies of liquid manure will be found very beneficial. Keep a sharp watch for caterpillars which should be picked off the plants or the latter sprayed with Katakilla.

Broccoli.—When these plants are ready for transplanting, set out the maincrop on firm ground for winter and spring supplies. Allow two feet six inches between the rows and about two feet between the plants in the rows.

Kales and other Greens.—All varieties of Kales, as well as Purple and White Sprouting Broccoli, Savoys, etc., should now be planted out in quantity, as ground becomes available. The land, if in good heart, need only be forked lightly, made firm, and levelled. If of poor quality, dig in a small quantity of well-rotted manure, or lightly fork in a dressing of soot and superphosphate. If possible, plant during showery weather, but if the weather is dry, keep the plants watered freely until they are well established.

Globe Artichokes.—These plants should now receive copious supplies of liquid manure; also apply a mulch of well rotted dung, especially where the soil is light and shallow.

Parsley.—Make a sowing of Parsley for providing a supply of leaves in autumn. This herb needs to be kept well watered during dry weather. Frequent light dustings with old soot will do much to stimulate growth.

General Remarks.—Use the Dutch hoe between all growing crops. Attend to watering, especially all newly planted crops. Place the necessary supports to Peas and Beans in good time as growth is now rapid and shoots easily broken.

HARDY FRUIT GARDEN.

By H. Markham, Gardener to the Earl of Strafford, Wrotham Park, Barnet, Middlesex.

Peach and Nectarine Trees.—These trees are making very good growth, especially where disbudding and the removal of surplus shoots have been done carefully. Constant attention is necessary in training the shoots. Young growths should be tied to the shoots from which they are growing to cause them to grow in a straight direction from the base, and this should be done before the wood gets too hard to bend to the position required. As the growth advances they should be tied to Privet twigs or some other means must be employed to keep them straight and safe from injury in stormy weather. On each occasion when the trees are attended to remove any of the young growths that are not required for filling bare spaces and for fruiting next season. Those that remain will thus have every opportunity to develop strength and become well matured by the end of the season.

Thinning the Crop.—Trees with heavy crops of fruit, which are now swelling fast, should be duly thinned of some of the crop. First remove the smallest fruits and those badly situated. Trees not making much growth and any that were root-lifted and pruned should only be moderately cropped, but where the new growths are strong and healthy, plenty of fruits may be allowed to remain to ripen. The number of fruits to retain on a tree will depend greatly on the size of the variety. If, at the final thinning, the fruits are evenly distributed all over the trees at a distance of nine square inches apart, when they are fully developed the crop is a very heavy one. I always complete the thinning of the crop before the stoning process. See that the roots are well moistened and trees bearing freely liberally fed. Syringe the foliage three or four times weekly in the afternoons when the weather is bright and warm; this will encourage growth and help to keep down attacks of red spider.

Strawberries.—Packing Strawberries to travel safely long distances is not an easy matter, but requires a great deal of care. A good plan is to procure a sufficient number of suitable sized punnets for the purpose, line each with cotton-wool on which place a sheet of tissue paper or very soft leaves. Gather the fruits when they are perfectly dry and a trifle under ripe. Place each berry, when the fruits are quite cool, in a soft leaf and then pack them closely together in the punnet, commencing at the rim. Over each punnet of fruit lay a few soft leaves and a covering of tissue paper. Boxes of suitable depth, lined with soft material, should be prepared, and the punnets of fruits placed in them closely together. Cover the whole with a sheet of cotton-wool and then fasten down the lids of the boxes. Two or more boxes may be tied together for transit, and they should travel well by rail.

FRUITS UNDER GLASS.

By F. Jordan, Gardener to Colonel Spender Clay, M.P., Ford Manor, Lingfield, Surrey.

Melons.—As choice hardy fruits are not likely to be over plentiful this season, every available pit and frame should be utilised for the growth of late Melons. I stated in my last notes that bottom-heat was essential to the fruits setting well, and especially to cause them to ripen, but with summer heat, almost anything that will ferment, combined with early closing of the pits or frames, will maintain a temperature suited to the growth of very good Melons. Select varieties which ripen quickly and plant in good, sound loam, free from animal manure. Feed the roots moderately, as what they will lose in size through lack of stimulants will be gained in flavour. The aim of the grower should be to provide a limited root run, ensure all the top and bottom heat available, thin training, liberal syringing with water warmed to 85°, and just enough water at the roots to prevent flagging of the leaves when the fruits are ripening. If the plants are set out on raised mounds, kept dry at the collar, carefully ventilated and thinly trained so that the sun can reach the bed, growth will be wiry and fertile. Such plants will set plenty of fruits which will swell to a good size and ripen satisfactorily.

Melons in Houses.—Top-dress plants growing in houses with bone-meal, but do not use animal manure. Feed the roots with tepid liquid guano or weak soot-water on alternative waterings. When two or three fruits promise to swell at the same time, all larger and smaller fruits should be removed and every lateral pinched to concentrate the energies of the plant in the main growth and to prevent the main leaves from becoming crowded. Beginners should be reminded not to remove surplus fruits too early, as a little too much water or a deficiency of bottom-heat sometimes causes the young fruits to turn yellow and die.

Peaches.—So soon as the fruits are all gathered on early trees the latter should be syringed frequently to keep the foliage clean, for on this will depend the ripening of the wood and the plumping up of the buds for the next season's crop. If the trees have furnished good crops, occasional applications of weak liquid manure will be found beneficial to them, and do not allow the roots to become in the least dry from now onwards until the leaves drop naturally. Throw the house open night and day, and expose the trees fully; see also that the latter are kept clean. Houses in which ripe fruits are hanging should be kept cool and airy. Examine the trees daily when the fruits are cool, and gather all that are ready; place them in an airy room on a soft surface, keeping each day's picking separate. The ripening of the crop in successional houses may be hastened, if there is likely to be a break in the supply. The night temperature may be raised to 70°, which may now be easily done without the aid of more fire-heat; avoid, however, a moist and stagnant atmosphere.

Late Peaches.—The trees in late houses which are swelling heavy crops of fruits should be assisted with diluted liquid manure and artificial fertilisers as required. Keep the foliage clean. Pinch all gross laterals and push the foliage to one side to let the sun reach the fruits to colour them as they approach ripeness, remembering that, as a rule, the higher the colour the better the flavour. The fruits on trees in late houses will now be sufficiently advanced to be thinned finally, and now is the best time to retard the crop, if this is deemed desirable.

THE FLOWER GARDEN.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Carnations.—Border Carnations will need staking and tying; the stakes should be as slender as possible, the patent wire supports sold for the purpose being very suitable. Many of the perpetual-flowering Carnations are splendid for furnishing beds out-of-doors and have the advantage of flowering freely throughout the season. These also should receive occasional attention as regards staking and tying.

Pinks.—There are many charming varieties of border Pinks; most of them are very useful for forming edgings and for furnishing supplies of cut flowers. Even when out of flower the grey, glaucous foliage is very attractive. They are all easily increased at this time from cuttings or pipings. Shoots from three inches to four inches in length should be inserted in sandy soil in cold frames, or under handlights or bell-glasses in the open; indeed, most of the cuttings will root readily in the open if they are kept partially shaded until they form a callus.

Pyrethrums.—The many beautiful single and double varieties of the border Pyrethrum are ideal plants for supplying cut blooms. They are very accommodating plants as they may be lifted after flowering, divided and replanted in the reserve garden, thus making room in the borders for summer-flowering subjects. They may be successfully moved again early in the year when they are starting to grow; they should never be disturbed at the roots during the autumn or winter, as this usually results in a large proportion of losses.

Ponds and Fountain Basins.—The problem of keeping ornamental ponds and fountain basins free from weeds of various sorts is by no means easy, especially if they are occupied by plants and fish. Some of the stronger-growing water weeds can only be kept in check by constantly cutting or dragging them out. The lower forms of plant life, as represented by various forms of green Algae, may be destroyed by sulphate of copper, the quantity used being 1 lb. to 100,000 gallons of water. The copper sulphate should be placed in a piece of coarse sacking and trailed through the water until it is all dissolved. This treatment should not injure Water-Lilies or coarse fish. Lime may also be used for destroying green Algae, and it is best applied by first mixing it with water; it should then be emptied in at various points in the tanks or fountain basins, stirring it about with a broom to ensure even distribution. The cloudy appearance quickly disappears, especially if an extra flow of water can be maintained for a short time.

Hedges.—These should be trimmed before the growths become too hard and woody, as the work is then much easier, and more expeditiously performed. Early trimming usually means a second trimming later, but it is really the better and quicker method. Broad-leaved hedge plants should never be clipped with shears; the shoots should be cut out with a knife or secateurs. Hedges are often neglected as regards manuring, with the result that they get thin and bare at the base. Where there is reason to suppose that they are neglected in this respect they should be given a dressing of well-rotted farmyard manure,

PLANTS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Zonal Pelargoniums.—These plants are useful subjects for the decoration of the conservatory during the autumn as they produce bright and variously coloured flowers. Plants intended for winter flowering are now ready for their final potting. The compost should consist chiefly of good, open loam, mixed with a little decayed manure and sufficient grit or silver sand to ensure free drainage. After potting, stand the plants in a slightly shaded place for a short time until it is found that the new roots are active in the soil, when they should be fully exposed to sun and air. Pinch out the tops of the plants to cause side growths to develop and remove all flower buds during the growing season. When the receptacles are well filled with roots a little manurial aid may be given, but not to such an extent as to favour a sappy growth, or the flowers may be somewhat disappointing.

Francoa ramosa.—Where old plants of the Bridal Wreath have been grown under cool treatment, they will now be sending up their flower spikes and may require a little more space and air to allow them to do so. The plants may be assisted and the flowers improved by the use of liquid manure. Failing this, a little concentrated plant manure will do quite well, provided it is used with discretion. This plant may be had in flower over a long period by introducing a few plants, at intervals, into a warm greenhouse, while the main batch may be stood out-of-doors under a north wall. The Francoa is by no means tender, and the hardier treatment allotted to it will result in finer blooms. This plant may be raised either from seeds or cuttings; the seeds should be sown now and germinated in a cool house.

Gardenias.—Young Gardenia plants raised from cuttings this year are ready for their final potting. The compost may consist of loam and peat, with a little bone-meal added, and coarse sand to render the texture porous. Plenty of warmth and moisture are necessary during the plants' growing season, and when the flower buds are visible the roots may be fed liberally with a suitable fertiliser.

General Remarks.—Bush Chrysanthemums should be potted as they become ready, also late rooted cuttings which are to be grown on single stems in six-inch pots. It is fatal to starve the plants at this stage; even if manure water is used to keep them growing the growth will be slow when they are placed in their flowering pots.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Greenhouse Plants.—In the greenhouse the Regal Pelargoniums are now making a bright display. To extend their flowering season they should be well attended to by removing all spent flowers, and regularly supplying the plants with liquid manure or an occasional top-dressing or some approved fertiliser. If green fly or white fly infest the plants they should be fumigated promptly, as both insects are capable of ruining the finest batch of Pelargoniums. For the destruction of green-fly "Auto-shreds" is very effective, and does not injure their flowers or foliage, while nothing seems to deal with white fly so effectively as the new fumigant, Cyanogas. It is most essential for the operator to withdraw from the greenhouse speedily, and lock the door when using this dangerous gas. Two-year-old plants of Crassula coccinea are also in flower, and fill the house with their sweet perfume, while their compact heads of rose-pink to scarlet flowers are very showy. These Crassulas are hardier than is generally supposed, and a few plants placed outside on a dry border have lived safely through the winter here, the foliage having become bronzed and reddened, but the plants promise to flower well later on. The newer varieties of Hydrangea Hortensia are also useful plants for greenhouse display, their bright blue, crimson and pink shades adding variety and colour. As a hanging plant for the warm greenhouse, Hoya bella is a splendid subject, as in this position its drooping umbels of waxy, white flowers with crimson centres are displayed to perfection, while their delicate perfume is also much appreciated. Cuttings taken soon after the flowering is over may be rooted in small pots and grown on to furnish similar baskets for another season.

Tying Peach and Nectarine Shoots.—The shoots of the current season should be trained in position and any surplus growths which are likely to overcrowd the trees removed. In tying these young growths, endeavour to get them as near as possible into the position they are to occupy when the older fruiting wood has been cut out in the autumn, and at the same time prevent them from shading or bruising the young fruits. As next year's crop depends, to a great extent, on the treatment of this year's young shoots, care should be taken to ensure that they are properly matured, and not overcrowded, or the branches allowed to cross each other at an awkward angle. The stoning stage is often a critical period, and where lime is deficient in the borders the result is shown in the dropping of the fruits, which, on being cut open, show clearly that the stone is not formed properly; fruits splitting open may sometimes be traced to a check, but it is also evidence of a lack of lime, which should be applied to the borders during winter.

Rock Garden.—The earlier flowering species are now fast getting over, and the spent flowers should be removed, to prevent the plants developing seed-pods. Where necessary, a top-dressing of suitable compost should be placed around the plants to encourage the development of new growth; this top-dressing also acts as a mulch, and is of great assistance to the roots during dry weather. The scarlet flowers of Ourisia coccinea are very pleasing amongst the less rampantly growing Saxifrages, and although it is generally recommended to plant this Chilian species in the shade, it seems to revel in a sunny spot, where its creeping roots can almost embrace the stones which form the pocket in which it is growing, creeping round them and forming fresh colonies. Lithospermum purpureum coeruleum has also been exceptionally good this season, although it is not generally classed in the front rank even among Lithospermums, because of its straggling and sparsely flowered habit. By continuous stopping of its long growths, which root if undisturbed, it may be formed into a fairly compact mound. Such plants have been covered with purple buds this spring, opening later to a deep blue.

Kitchen Garden.—All spring-sown Brassicas are ready for transplanting in their permanent quarters. It is sometimes recommended to wait for showery weather and, where watering in the plants is out of the question, this advice may be adhered to, but, as a general rule the planting is more cleanly and speedily performed in dry weather; and if the plants are given a good soaking, the loose, dry surface soil moved by the hoe or cultivator so as to cover the wetted surface, and thus prevent the sun from drawing out the moisture, the plants will soon recover and grow away freely. Another advantage of planting in dry weather is that on slug infested ground, these pests are not so troublesome, and do not move about so freely as when the surface is moist, whilst materials used as deterrents to slugs, such as lime, soot, alum, etc., remain effective for a much longer period than when the soil is wet. Early Celery and Leeks intended for autumn use should be kept watered with well diluted liquid manure and encouraged to make rapid growth. The main crops of these vegetables should be planted so soon as the seedlings are ready. A sowing of Peas may yet be made for late supplies, choosing early maturing varieties, such as Pilot and Gradus, or any of the special sorts recommended by seedsmen for this particular purpose.

HARDY FLOWER BORDER.

PAEONIA VEITCHII.

This species (Fig. 205) belongs to the Anomala group of the Paeony family, and was found by Wilson in 1904 growing on the uplands around Tatien-lu, on the borders of Western China and Tibet. Here it was met with on the margins of thickets at an elevation of about 9,000 feet. At first sight it somewhat resembles the well-known P. anomala, but it differs in having branching stems bearing several flowers, while P. anomala usually bears only one on each stem. It is also later in flowering, taller growing, and with foliage having broader leaflets.

P. Veitchii makes a good, bushy plant, from two feet to three feet high, with purplish-crimson flowers about three inches in diameter, borne on drooping stalks which gives the plant a graceful appearance. Owing to the peculiar smell possessed by the plant it is known in China by a native name meaning "stinking Moutan."

Closely allied to the above is P. Woodwardii, from Kansu, where it was collected by Purdom in 1914. It is of the same graceful habit, but with dull green foliage instead of shining green, as in P. Veitchii. The flowers are also larger, from four inches to five inches across, and pale lilac in colour, tinged with rose.

Both species are excellent garden plants, and like a half-shady position, and a rich, loamy soil; they are ideal subjects for the wild garden or open woodland. P. Veitchii was described by Lynch in *The Gardeners' Chronicle* of July 3, 1909. *W. J.*

LUPINUS.

Varieties of Lupinus polyphyllus are easily raised from seeds, which may still be sown in the open. The many beautiful named varieties, however, should be propagated from cuttings or division.

Herbaceous Lupins may be divided successfully during the spring when they are starting into growth, and they may also be divided after they have finished flowering, but in this case greater care is required to ensure success. If the weather is dry the plants should be kept watered until they grow freely at the roots and commence to make top growth.

The varieties with a sub-shrubby habit, of which Sunshine and Light of Loddon are good examples, are best increased by means of cuttings made from the lateral growths which develop as the plants pass out of flower. Where a large stock is required the cuttings are best inserted in beds of sandy soil in cold frames. When well rooted they may be lifted and transferred direct to their flowering quarters, or, if the sites are not vacant, they may be placed in pots and grown on until such time as they can be planted out. *C.*

INULA GLANDULOSA.

Inula glandulosa is an acquisition to even the most select collection of hardy border plants. Like other Elecampanes, it has large, golden flowers of much beauty, and as its height is only about two feet, it is suitable for small borders, where taller subjects would be out of place.

The flowers are composed of fine disc florets and narrow, graceful ray florets which are so numerous as to produce a good effect, not being too wide apart to display their bright colouring to the best advantage.

This Inula has been in cultivation for many years and is quite hardy, not sharing the slight tenderness of its congener, I. Oculus Christi. The plant needs a rich soil and a sunny situation but not one that would be excessively dry in summer, as this would cause some of the lower leaves to wither. It may be raised from seeds or increased by division.

In later years a still superior form has been raised and sent out under the name of Inula glandulosa superba. It is considerably better than the type, giving large, finely coloured, yellow flowers of large size, with numerous, narrow, thread-like, ray florets. It is nearly a foot taller, but is in every way a most desirable plant. The variety may also be raised from seeds or propagated by division. Both are excellent flowers for a display in late summer and autumn. *S.*

ALPINE GARDEN.

SILENE HOOKERI.

When I first saw this beautiful little plant at Chelsea a few seasons back, I was impressed by its loveliness and a longer acquaintance leaves me enamoured of its charm; the starry rosette produces large pink and white flowers over a long summer period, on stems but a few inches high.

The plant is very prone to injury by winter damp, and this evil should be obviated by the use of a square of glass. It is a good moraine plant and is both interesting and strikingly pretty when grown in a pan or pot in the alpine house; slugs have a great liking for this alpine treasure. *R.*

FLOWER GARDEN.

ERYNGIUM ALPINUM.

Of the Sea Hollies in cultivation, none rivals in beauty the European E. alpinum, a native of the limestone regions of the mid-alpine districts. It is said to be very limited in numbers there, and this seems strange to me, for I have grown it with ease, even in soils devoid of lime. In the garden it appears to love a sandy or light loam, and I recollect having some correspondence on the subject of this plant many years ago with the late Rev. C. Wolley-Dod. I told him that E. alpinum grew into large clumps which could be divided with a spade. Mr. Wolley-Dod, who had a heavy soil, was surprised at this, and asked me to send him a clump divided with a spade. This I had much pleasure in doing, much to the gratification of that splendid hardy plantsman.

Erigeron alpinum is a very fine species, well-coloured with blue up the stems and about the inflorescence, which consists of lovely, feathery-looking divisions, indescribably beautiful, on stems about eighteen inches high, rising above the foliage.

Years ago, when it first came to this locality, having been sent by a keen hardy plantsman from Dumbartonshire, it was called E. planum in error, but I had then few opportunities of verifying names of plants, and I experienced some difficulty in deciding its correct name. E. alpinum superbum is listed as a variety, but the plants vary considerably in the depth of the blue colouring.

I find that E. alpinum does best with me in a sandy soil but in cultivation it appears to have no partiality for lime. *S. Arnott.*

EUPHORBIA EPITHYMOIDES.

Not many of the hardy Euphorbias are of sufficient horticultural merit to warrant their inclusion in a list of decorative plants; the above mentioned species is, however, an exceptionally fine garden subject, and should be more generally known and grown. It is not surpassed by any other member of the genus for planting in beds or borders, for naturalising in the wild garden or for cultivating in the rock garden.

Its height varies from one foot to eighteen inches, and the plant is of bushy habit, producing numerous leafy stems which are terminated by heads of bright yellow bracts, while the upper leaves are suffused with the same colour, a feature which adds to the attractiveness of the plant. The heads of bracts are four inches or more in diameter.

E. epithymoides is a native of central and eastern Europe; it flourishes in a loamy soil, although it will succeed admirably in dryish, sandy ground. The flowers are first produced early in April, and they continue in good condition until the middle of June.

Cuttings taken during summer, inserted in sandy soil and placed in a close, warm house for a short while, will root readily, and quickly form good-sized plants.

Late frosts may cause the stems to fall almost flat, but they quickly recover as the frost disappears, and the beauty of the plant is in no way diminished in consequence thereof. *T. H. Everett,*

SPIRAEA FILIPENDULA FLORE PLENO.

Our native Spiraea Filipendula is not very common wild in this country, being generally confined to chalky or limestone pastures. The species is a beautiful plant and worthy of a place in the garden, but even more beautiful and decorative is the double form, and this is especially suitable for growing in the front of the herbaceous border or for using as an edging to a border, as the finely divided, Fern-like foliage retains its pleasing green colour for the greater part of the year. The plant attains to a height of from one foot to fifteen inches, and each flower-stem bears a panicled cyme of palest cream-coloured flowers, each tiny in itself, but in the aggregate forming a most lovely inflorescence. Prior to opening, the buds are of a pinkish hue.

June is its month of flowering, and should the weather be very hot and the ground dry, the blossoms are inclined to fade rather quickly; some little attention should therefore be paid to choosing a suitable situation at the time of planting. A semi-shaded situation and a moist soil are to be preferred, whilst the addition of mortar rubble or lime to soils at all deficient in this material is recommended. The ground should be well-dug and manured liberally. Established clumps should be lifted and divided every three or four years, September or October being the best time for transplanting. Dividing and planting may also be done successfully in April, but the current season's flower will be sacrificed, although every small rooted piece will grow when planted at that time of the year.

IRIS GARDEN.

IRISES AT KEW.

For a considerable time the Iris Garden has been one of the most attractive features of the Royal Gardens, Kew, and even now, when the earlier varieties have finished their generous display, there are plenty of later sorts to make the garden well worthy of a protracted visit.

Although Kew still retains the old specific nomenclature in many cases, the pure garden lover, who is not so concerned as to whether the Iris being admired is a pallida, plicata, squalens, neglecta, amoena or one of the other types, feels relieved to note that with the newer Irises their labels bear only the varietal name. For who could say, with certainty, in which section these lovely newcomers should be placed? It is much simpler to follow the new Iris Society and term these June-flowering Irises "Bearded Irises."

At the moment, it is the varieties of definitely bicolor type—those with buff or yellow shades or bronzy-pink standards, that make the first appeal to the garden lover as distinct from the botanist, and when, as is usually the case at Kew, they are grouped in quantity, they are especially effective. Of this type the best sorts at the moment are Jacquiniana, which has rose-tinted standards and freely-lined velvety purple falls. Dr. Bernice is of relatively dwarf habit, but bears quite large flowers with rosy-buff standards and purple falls. Proserpine has rosy-bronze standards and blue-purple falls. Porsenna, raised by Mr. Yeld, is a vigorous variety, bearing pale orange-buff standards and crimson-purple falls which are distinctly paler at the edges. Astarte is of very uncommon colouring. The standards are the same pale mauve as often seen in Cattleyas and the falls are bright rosy-purple.

While most of the Irises of more or less blue and blue-purple colouring have finished their flowering, there are still several varieties to carry on the season. Black Prince, which has smoky-toned falls lightened by a gold crest, is happily named. Mrs. Tinley, one of the best of what may be termed the greatly improved German Irises, still has a few beautiful flowers. Parc de Neuilly, another desirable variety, is a little later. E. H. Jenkins, of vigorous habit, has blush-blue standards and purple falls. Dalila, which was shown so well by several exhibitors at the Iris Show is, at Kew, also a splendid garden variety. Its very pale flesh standards are in strong contrast to the rich red-purple falls. Isoline, also prominent at the Iris Show, is very good at Kew, and this is one of the beautiful "Pink Irises." Tom Tit is the dwarfest of the Irises now in flower, and it has plenty of rich blue flowers.

In addition to the garden varieties, there are several large-flowered species at Kew which are worthy of extended cultivation. Iris sambucina is a robust species bearing bronzy-pink flushed standards and rose-purple falls with yellow lines to the centre. I. cypriana, is the tallest large-flowered Iris now in flower, and it bears big blooms with pale mauve standards and deeper coloured falls, but it appears to require staking, which is a drawback in a garden Iris.

The large bed of Iris sibirica and its varieties is very interesting. Snow Queen is the best of the white varieties, while Perry's Blue, and the deeper blue Emperor, are both admirable. The very dwarf acuta is of stiff, erect habit, but has very pretty flowers. In the Iris Garden the season will continue for some time with the taller species, such as I. Guldenstaedtiana, I. spuria and its varieties, I. aurea, I. Monnieri and I. ochroleuca.

The Water Irises are not so well represented at Kew, though there is a clump of the very uncommon Iris fulva (syn. I. cuprea), a graceful North American species which bears coppery-red flowers. Iris laevigata, over which those who have visited Japan rightly enthuse, is charmingly beautiful, while in the Rock Garden there is also Iris hyerensis, a garden variety which suggests I. sibirica as one parent, about two feet in height and bearing graceful purple flowers. *A. C. B.*

IRIS GAGUS.

THIS variety (Fig. 206) is one of the most attractive of the earlier bearded Irises. Although rarely more than two feet in height, Iris Gagus bears quite large flowers of great beauty. To those unacquainted with the fascinating combination of yellow and bronze in the best of the newer Iris squalens varieties, the first sight of such an Iris as Gagus comes somewhat as a revelation. The effect of the canary-yellow standards and rich purple falls with bronzy-brown veining is most entrancing. This variety received the R.H.S. Award of Merit in 1916 (after trial at Wisley), and in addition to its great charms it has the additional merit of being of easy cultivation.

IRIS MARGOT HOLMES.

THE Iris Society has increased the award made to Iris Margot Holmes, raised from Iris chrysographes × I. Douglasiana by Mr. Amos Perry, and exhibited by him in Class 13 for a new seedling other than a bearded Flag Iris at the Society's Show on June 2, from a Silver Medal to a Silver-Gilt Medal. This Iris was also nominated as the best seedling Iris in the show for the Dykes Memorial Medal.

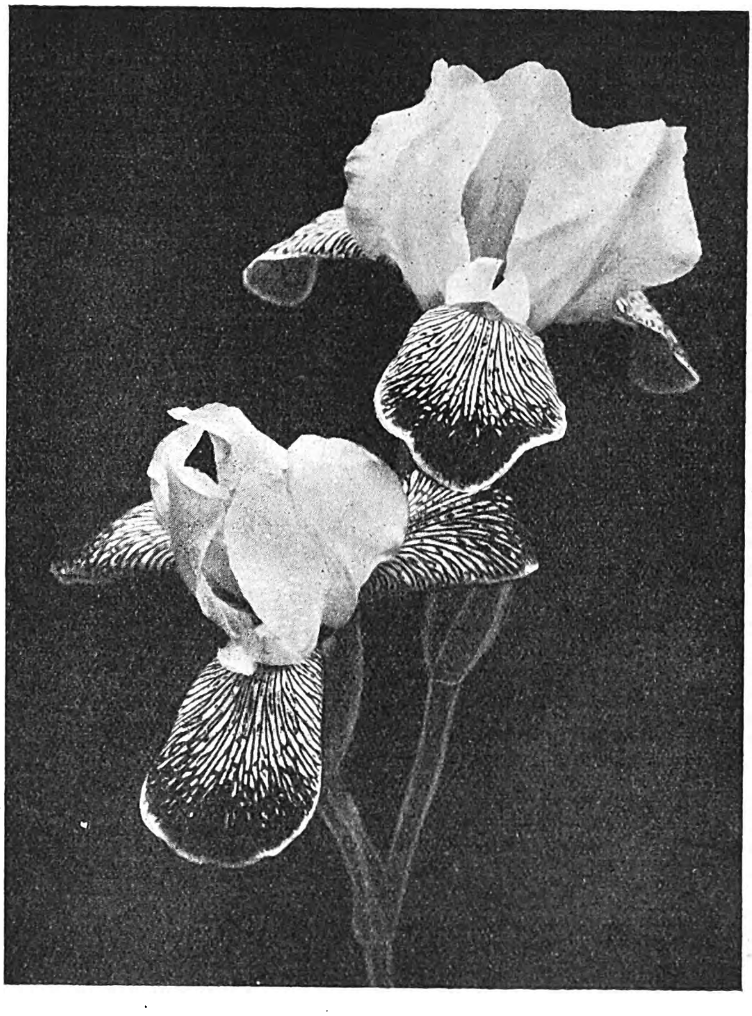


FIG. 206.—IRIS GAGUS.

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

AMONG several trees and shrubs which are flowering sparsely this year in reaction from their profuse blooming in 1926, none is more remarkable than the Laburnum—both L. vulgare and L. alpinum. Many of our trees have hardly any flowers on them. Upon one specimen of the hybrid L. Watereri, twenty feet high, which is usually richly draped with long, hanging racemes, there are but three trusses of flowers. Piptanthus nepalensis, nearly related to Laburnum, but, as Mr. Bean has noted, with flower sprays more like those of the herbaceous Thermopsis, has never proved satisfactory in the open here. It has survived a score of winters, indeed, and flowers sparingly each year, but evidently would be happier against a wall. Mr. E. H. Wilson introduced the Chinese P. tomentosus (? concolor) which takes much more kindly to our climate, and closely resembles the other species, except that its leaves and young growths are clothed with a silvery down, giving a very distinct character to the plants.

When Mr. Wilson was here, two or three years ago, I showed him a specimen of Prunus brachyloba raised from seed he collected in China, and told him that I had decided to cut it out in order to relieve a good plant of Eucryphia pinnatifolia on one side, and Rhododendron George Hardy on the other. But that tree still stands, for Mr. Wilson protested against its removal, saying that it was far the best specimen he had seen in this country. It is now forty feet high, and hitherto has flowered but sparsely, but this year it is well set with sprays of blossom, very like those of our native Bird Cherry—Prunus Padus. In habit, however, it is far more erect and arboreal.

All the Daisy bushes are, or will be, exceptionally showy this year, the earliest to flower being Olearia nitida, now past, followed by O. Gunniana (stellulata), and O. semi-dentata with lilac flowers, the prettiest of the lot.

Of the shrubby Meadowsweets, the van was led in April by the snow-white Spiraea arguta, a triple hybrid which never flinches even under the cruel spring frosts it had to encounter this year. Next in succession comes the Japanese S. bracteata, which I prefer to the hybrid S. Van Houttei of similar habit and flowering simultaneously. Nearly related to the Meadowsweets is the Pearl Bush—Exochorda grandiflora—whereof I noted the merit in a recent issue, and will now only add that should anyone wish a charming group in May, let him place this shrub alongside of Rhododendron Pink Pearl. The shower of white sprays set off the rich rose of the Rhododendron with exquisite effect.

Most gardeners are familiar with the tortuous tangle of Corokia Cotoneaster (*Bot. Mag.*, tab. 8,425), but C. virgata (*Bot. Mag.*, tab. 8,466) is seldom seen, though it is far superior to the other in grace of growth. Early in June a bush eight feet high in a mist of yellow stars, was a very distinct and pleasing object. Cheeseman described three species of Corokia in his *Flora of New Zealand*, all with red berries; but he mentioned having collected "what may prove to be a fourth species, a twiggy bush, eight to twelve feet high, with slender branches, not tortuous. Flowers and fruit not seen." This was probably C. virgata, which has proved quite hardy here, the fruit being a bright yellow drupe.

Sharp and salutary has been the lesson we have learnt in the past spring about the advantage of late starting Rhododendrons over those which start early in growth. Two of the latter class—R. triflorum and R. villosum—are now in full flower and form a fine contrast when planted near each other. Mr. Millais does them scant justice in describing the flowers of the first as greenish-yellow, and those of the second as "more striking than beautiful." The corolla of R. triflorum seems to me of palest sulphur, spotted with raw sienna on the upper lobe; and if the red-purple blossoms of the better forms of R. villosum are a trifle lurid, get the sun to shine through an eight-foot bush at its best, and one must be very fastidious not to enjoy the effect.

Among lowlier growths, there is no finer contrast at present than between the intense blue of Cynoglossum nervosum (*Bot. Mag.*, t. 7,513) and the vehement orange-scarlet of Hippeastrum (Habranthus) pratense.

The wild Hyacinth (which we in Scotland decline to speak of as the Bluebell) is prone to invade the flower garden from neighbouring woods in greater number than is desirable, but the result of its flirtation with the Spanish Squill—Scilla hispanica—appears in the form of a very handsome hybrid, its flowers of a deeper blue than the Spaniard's, and the stem more robust than the native's. I counted forty-three blossoms on a two-foot stem this evening. *Herbert Maxwell, Monreith.*

TREES AND SHRUBS.

CONIFERS AT STOKE PARK.

THE spacious grounds of Stoke Park contain many large, old trees, but in the park itself these consist largely of Oaks, Limes and Elms. A piece of ground at the east end of the house must have been laid out in the form of lawns and planted with choice or very uncommon Conifers and shrubs many years ago. The trees have now attained great size; and the Deodar Cedars must have been planted about the time of their introduction. One of the most perfect and pyramidal now stands somewhere about ninety feet high, and has a straight trunk up to the drooping leader. This must be a fair rival to the fine tree at Westonbirt. A massive tree of the Algerian Fir (Abies numidica) stands about sixty feet high, and is well furnished with branches to the ground. Near by is a fine tree of the Monterey Pine (Pinus radiata), nearly as tall and in vigorous, healthy condition, such as is seldom seen so far inland. Even at Bournemouth bad trees of it may be seen. The Monterey Cypress (Cupressus macrocarpa) though more of a bush than a tree, is a very massive one, producing cones of great size. Libocedrus decurrens is a shapely tree of its kind, being perfectly columnar. It stands on the outside of the group and is conspicuous over the whole of the east side of the park. A specimen of Cephalotaxus, which I took to be C. Fortunei without close inspection, is eighteen feet high, and is tall for its kind. At the west end of the house are some trees of Thuya orientalis elegantissima, about eight feet high, though this is usually considered a dwarf variety. There are several of them and, being of some age, they look quite massive. Miss Jackson takes great interest in these trees, and I had the pleasure of being conducted over the grounds by her. *J. F.*

VERONICA HULKEANA.

THOUGH not perfectly hardy in the open, this beautiful shrub does quite well if planted against a wall with a warm aspect. It is a semi-erect, loosely-branched shrub, from two feet to three feet in height, though in favoured situations it will grow much higher, its branches being terminated by large, branching panicles of numerous soft lilac flowers.

The leaves are borne in pairs some distance apart. The are dark, glossy green, rather fleshy, one inch to two inches long, ovate in shape, with deeply-toothed margins, the base being either rounded or tapering into a stalk about half-an-inch in length.

The small, sessile flowers are about a quarter-of-an-inch in diameter; the panicles in which they are produced are often more than twelve inches long.

This Veronica is a native of the south Island of New Zealand and flowered for the first time in this country in 1864. *A. G. F.*

CLIANTHUS PUNICEUS MAGNIFICUS.

THIS beautiful New Zealand shrub commenced flowering on April 25, on an open, west wall. The brilliant green, pinnate leaves form a fine setting for the flowers, which are of striking appearance; the latter are bright scarlet, shaped like a parrot's beak, and borne in large clusters. Of erect habit and a rapid grower, this shrub is well suited to training and will ultimately grow from fifteen to twenty feet in height.

During the growing season, fortnightly waterings with liquid manure improve the colour of the foliage and flowers, but feeding should be discontinued after July.

Although the variety is more hardy than the type, it requires the shelter of a west or south wall and protection in winter. It is easily propagated from seeds or cuttings; young plants should be grown in pots and planted in their permanent quarters when two years old. Considering that this shrub has been introduced over seventy years it is not so well-known as it deserves to be. *S. Bowler, Ford Manor Gardens, Lingfield.*

MESEMBRYANTHEMUM.

(Continued from p. 253.)

5.—GIBBAEUM, HAW.

THE following matter relating to this genus is additional to that already published in *The Gardeners' Chronicle*, and brings our knowledge of it up to date.

G. album var. roseum, N. E. Br.—Besides the typical form with pure white flowers described in *The Gardeners' Chronicle*, 1926, vol. LXXIX, p. 215, Fig. 105, C. and G., Dr. Muir has discovered a more robust form which has flowers varying "from pale to very deep pink," to which the above varietal name may be given. But some plants of the same robust form have pure white flowers.

Riversdale Division: In the Klein Karoo, Muir, 3975!

G. angulipes, N. E. Br.—Stems procumbent or decumbent, with very numerous growths or short branchlets crowded into a compact mass of a silvery or greyish colour. Each growth in nature formed of two unequal leaves united for about 3 lines at the base, with the free part of the larger leaf ½–1 inch long, and of the smaller leaf 4–10 lines long, 4–5 lines broad and 2–3½ lines thick near the base, slightly flattened-subterete or trigonous-subterete, the larger leaf being less convex on the face than the smaller one, and its edges rather more distinct, sometimes slightly keeled on the back at the apical part, apex obtuse or bluntly pointed; surface smooth, velvety to the touch from being covered with a very minute, hoary, adpressed pubescence, the hairs pointing downwards; when at rest naturally the leaves are pressed together, but when growing (at least, under cultivation with me) they diverge from the base and more or less recurve. Flower solitary, terminal, with a new growth on each side of its base. Pedicel 6–10 lines long, 1¾-line thick at the upper part, slightly narrowing towards the base, angular and together with the calyx velvety-puberulous like the leaves. Calyx subequally 6-lobed; lobes 2½–3 lines long and 1¼–1½ line broad, ovate, subacute or obtuse, keeled on the back, two of them with membranous margins. Corolla apparently about 8–9 lines in diameter; petals numerous, free, in about 2 series, 3–3½ lines long, ½–¾-line broad, cuneately linear, obtuse, apparently magenta ("red" according to Dr. Muir). Stamens numerous, erect, about 1½-line long, white; filaments hairy at the base. Stigmas 6, connivent erect, about ¾-line long, subulate acute. Fruit not seen.

Mesembryanthemum angulipes, L. Bolus in *Annals of the Bolus Herb*, vol. IV, p. 2 (1925).

Riversdale Division: In the Klein Karoo, at 1,000-1,300 feet above sea-level, flowering in September and October. Muir, 3898!

This interesting species at first sight is quite unlike the other known members of the genus Gibbaeum on account of the leaves being free for a great part of their length, and divergent when growing, but its flowers and pubescence demonstrate that it belongs to this genus. It was discovered by Dr. J. Muir in 1923 and sent to Mrs. Bolus, who described it as above-quoted, but without indicating its true affinity. Dr. Muir informs me that in South Africa "It is a silvery, often depressed, somewhat scrubby undershrub, often with decumbent or spreading branches, and grows on flats and hillsides from 1,000-1,300 feet. It occurs partly on the quartz fields and partly on the adjoining Bokkeveld shales in the Klein Karoo, flowering copiously in September and October."

From Dr. Muir's account it would appear that it attains to the height of an undershrub in South Africa; with me, however, the plant of it I received from Dr. Muir is prostrate, and only attains a height of about 2 inches above the ground. In this country also, as the growth takes place in the colder and more sunless part of the year, two or even three pairs of leaves are present at the same time on the growths, as there is no sun heat to dry up the old leaves.

G. dispar, N. E. Br. in *The Gardeners' Chronicle*, 1926, vol. LXXIX, p. 215, Fig. 105B.—Pedicel 1–2 lines long. Calyx subequally 6-lobed, lobes about 2½ lines long, two of them keeled and green, the other four flat, broadly oblong and with membranous margins, rounded at the apex. Corolla 12-13 lines in diameter, fully open from 10.30 in the morning, according to Dr. Muir; petals in one series, about 5-5½ lines long and ½-¾ line broad, linear, obtuse, intense pink, with the median line very faint or absent (ex Muir). Stamens numerous, 2-2½ lines long, filaments not hairy at the base, white; anthers yellow. Stigmas 6, finally 2½ lines long, erect, filiform-subulate. Ovary flattish at the top.

This completes our present knowledge of this plant, the above description being made from flowers of the type. Muir 3797; sent to me by Dr. Muir.

G. geminum, N. E. Br. in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 129, Fig. 64F, and vol. LXXIX, p. 215.—Dr. Muir informs me that this species "forms mats on carpets up to several feet in diameter, and is found most commonly on the flats in clayey soil, also often in brackish places. Less commonly in gravelly places on the shales away from the quartz fields."

G. Shandii, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 129, Fig. 64, D. E., and vol. LXXIX, p. 235.—I am now able to add a description of the flowers of this species made from dried flowers sent to me by Dr. Muir:—Pedicel 7–8 lines long and together with the calyx minutely puberulous like the growths. Calyx subequally 6–lobed; lobes about 2 lines long, two of them keeled, the others flatter, oblong, obtuse, with narrow, membranous margins. Corolla 9–11 lines in diameter; petals in one series, about 3⅓–4 lines long and ⅓-line broad, linear, apparently acute, "deep pink, with a darker median line from base to apex," ex Muir. Stamens numerous, collected into a cone 1½ line long; filaments not hairy at the base, "of the faintest flesh colour; anthers yellow." Stigmas 6, about ¾-line long, shortly subulate, acute, greenish, connivent in the flower seen, but perhaps spreading in older flowers. Top of the ovary flattish.

Ladismith and Swellendam Divisions: In the Klein Karoo, Muir, 3815!

Dr. Muir informs me that in nature this is a smaller species than G. pubescens, that it "does not glitter in the sun and occurs in quite different localities usually." "G. pubescens is a larger, finer shrub, glittering silvery and always on the quartz fields. G. Shandii is much smaller, drab and somewhat dirty-looking, and prefers the stony broken Bokkeveld shale areas, which are mostly dark brown. G. pubescens has as a background the white quartz fields which make the eyes ache. G. Shandii a dark ugly, stony background. You can distinguish them in a fast travelling motor without getting down." Since these two plants are so easily seen, as they form "little, mound-like clumps dotted over the country," their colour resemblance to their surroundings cannot be in any way protective, therefore there must be some other explanation of it than the one of "protective resemblance," which is usually applied to such resemblances. Can it be that there is some unknown physical action brought to bear upon the plants by the reflection of light from their surroundings that causes them to be somewhat similarly coloured? The colouration of G. Shandii and G. pubescens in my greenhouse is hardly distinguishable and much greener than in nature. *N. E. Brown.*

(To be continued.)

INDOOR PLANTS.

CISSUS DISCOLOR.

This easily-grown exotic of scandent habit may well be included in all collections of warm-house subjects; the somewhat insignificant flowers are greenish-yellow and are usually produced in late summer.

The leaves are cordate-oblong, acuminated, with bristly serratures at the edges; the upper surface is bright green, spotted and mottled white, the underside reddish-purple; both surfaces are smooth. The thin veins are pink and there is a slight pink suffusion at the extremities of the white patches, the effect being very pleasing.

This favourite of other days was introduced from Java in 1854, and is illustrated in *Bot. Mag.*, t. 4,763; it also forms the subject of an excellent plate in Lowe's *Beautiful-Leaved Plants*.

Cissus discolor succeeds in sandy peat and loam, and is easily propagated from cuttings; it is a fine pillar or rafter plant, and in former days, balloon-trained specimens were frequently seen at exhibitions.

EOMECON CHIONANTHA.

This plant has flowers of purest white, with golden stamens, surmounting the decorative foliage, and it is an admirable subject for planting in a cold house; in favoured localities it might well be given a trial in the open air.

The flowers are terminal, on slender pedicels; the scape grows about one foot high, is red-tinted, and branched. The leaves are radical, and heart-shaped, with the margins prettily sinuated.

The plant spreads rapidly in fairly light and good soils, and a mass, in April, is a very pretty sight. Increase is easy by division.

A monotypic genus of Papaveraceæ, E. chionantha was introduced from China in 1885, and is figured in *Bot. Mag.*, tab. 6,871. *Ralph E. Arnold.*

ORCHID NOTES AND GLEANINGS.

ORCHIS FOLIOSA × O. MACULATA.

This hybrid is a very beautiful plant, as is testified by the fine clump in the Kew rockery.

In general habit the plant resembles the Madeiran species, although it is somewhat stronger in growth. The leaves are distinctive in that, although they are quite as large as those of O. foliosa (Fig. 207), large chocolate blotches are spread over the leaf surface, especially around the leaf margin, and are no doubt derived from O. maculata. The inflorescence is unusually large and of a bright rosy-purple, rather deeper than in O. foliosa. In addition to the depth of colour the flower is freely marked with the deep purple lines found in O. maculata. This hybrid thrives in a moist but sunny position. Although O. foliosa is a handsome Orchid, the hybrid is superior. *T. D. Boyd.*

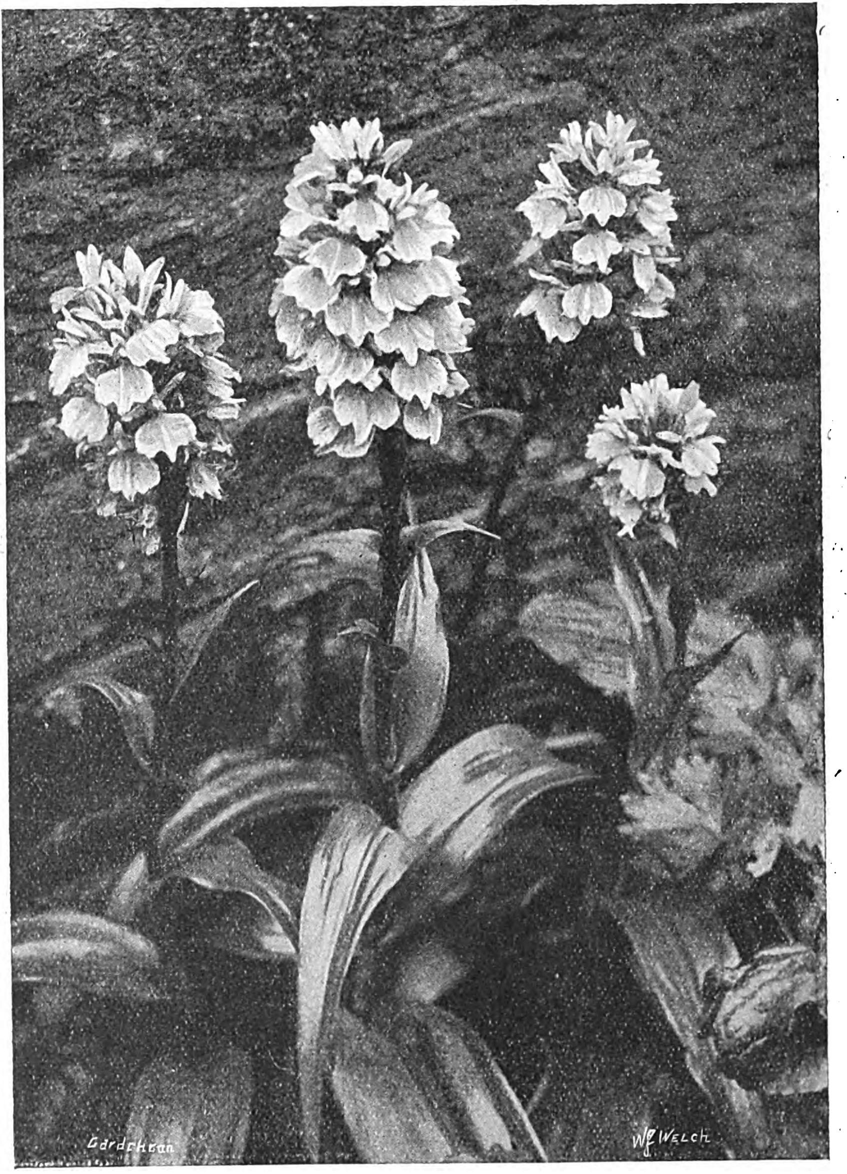


FIG. 207.—ORCHIS FOLIOSA.

EVERGREEN DENDROBIUMS.

The genus Dendrobium unquestionably occupies the first place among the epiphytal Orchids of the Old World in the estimation of horticulturists, and the recent exhibition of some of these beautiful plants brought back memories of the many superb specimens of past days, when there were no more popular plants for exhibition. Dendrobium chrysotoxum, D. densiflorum, D. thyrsiflorum, D. suavissimum, D. Brymerianum, D. clavatum, D. Farmeri, D. aggregatum, D. Dalhousieanum, its variety luteum, D. fimbriatum and D. f. oculatum, comprise the best known garden species and varieties and those most generally grown. The hybrid D. illustre which was raised by Messrs. James Veitch and Sons in 1895, from D. chrysotoxum crossed with D. Dalhousieanum, is one of the parents of the lovely D. Gatton Sunray, shown by Sir Jeremiah Colman in 1919.

D. Gatton Sunray is derived from D. Dalhousieanum luteum crossed with D. illustre, and is a proof of the progress made in Orchid hybridisation during the last decade.

The hybrids in this section are few, and more interesting to the hybridist than from a horticulturist standpoint, as few are so effective as garden plants as the species.

The greater number of those named produce their flowers at this season, and are splendid subjects for a variety of purposes on account of their brilliant colouring.

These Dendrobiums need a longer season of rest than many other Orchids; they are also late in starting into growth, but when started growth is rapid. Soon after the flowers fade, new growths will appear from the bases of the last made pseudo-bulbs, and any necessary repotting should be done then.

The roots of the strong-growing, evergreen kinds are usually larger and more robust than those of the deciduous species; therefore, the compost for them may be used in a coarser condition. Two parts of Osmunda or A.1. fibre to one part Sphagnum-moss, mixed with sufficient broken crocks to render the compost porous, forms a suitable rooting-medium. In the preparation of the compost it is essential that the ingredients should be thoroughly cleansed, removing all the earthy particles; discard any pieces of the fibre which show a tendency to produce fungous growths. Plants that need repotting should be carefully turned out of their receptacles; pots are the best receptacles for the strong growers; the small growers, such as D. aggregatum, are best grown in pans. The old, decomposed material should be removed, also any dead roots and useless back pseudo-bulbs. As a rule, the roots are not long-lived, and no harm need be feared by disturbing them. For most of these Dendrobiums slightly larger pots or pans may be used than for the members of the deciduous section, but overpotting must be guarded against. The receptacles should be well-drained and the plants potted firmly. After repotting, thoroughly cleanse the foliage, and place the plants in a position well exposed to the light.

The dwarf-growing species are best grown suspended from the roof rafters, while the taller growing kinds are best accommodated on the stages, where they may receive the maximum amount of light. For a time, very little water at the roots will suffice, only sufficient to keep the rooting material just moist; but plenty of atmospheric moisture and frequent sprayings overhead and on the undersides of the foliage when the weather is bright and warm, will assist the plants in making clean, satisfactory growth. During the growing season, as the plants become well-rooted, liberal supplies of water will be needed by the roots until the new growths are completed, when only sufficient moisture should be given the plants to prevent shrivelling. These Orchids thrive best and keep most regularly to their seasons of growth and rest when grown in an even temperature, such as a warm Cattleya house provides. *J. T. B.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden. W.C. 2.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER, *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations, or to return unused communications or illustrations, unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

MR. F. KINGDON WARD'S NINTH EXPEDITION IN ASIA*

XII.—RHODODENDRONS.

BESIDES the Rhododendrons already mentioned, several of which were abundant, though others, such as the 'Haematodes' did not extend so far up the valley, I found two species in flower this day; a large, bushy 'Anthopogon,' with coral-red flowers, and a smaller 'Saluenense,' with vivid magenta flowers. This was R. rivulare, again a plant I discovered in Tibet in 1926—K.W. 5,828=6,903. Many of the species of 'Saluenense' are much alike, and from the gardener's point of view, can be ignored as mere repetitions; but the Seinghku valley yielded three dwarf species as distinct as any that can well be imagined, though the only one in bloom as yet was the one mentioned above. I was, however, not unmindful of the other two, which I spotted long before they opened their buds to my expectant gaze.

During the next ten days I explored every valley, cliff and glen, reaping a fine harvest of good things, and climbing gradually higher as the snow melted; though it was unnecessary to climb much above 13,000 feet, at all events till far on in the year. Though the snow line on the southern, or rather eastern, flank of the Irrawaddy-Brahmaputra divide stands at over 16,000 feet (and on the western flank higher still), it is evidently only within very recent time that it has retreated. The valley, then, has been heavily glaciated, and between 14,000 and 16,000 feet are mostly bare cliffs and barren screes, with a very sparse high alpine flora, as though few species had yet had time to colonise the new domain, or try and adapt themselves to such unusual conditions.

On the more sheltered flanks, Abies and the pink-and-cream 'Falconeri' Rhododendron formed the last of the straggling forest; but the exposed slopes were entirely devoted to dense thickets of Rhododendron, through which it was impossible to plough a way. However, nature here came to the rescue, and had scored the flanks of the mountains with many gullies, some of them broken by wall-like escarpments, but most of them climbable. By means of these steep and narrow corridors one could reach the dwarf Rhododendron carpet above (now sleeping beneath the snow) or the alpine turf slopes, or the screes. The main valley was so cold and bleak that, until June 18, I made no attempt to follow it up to the next junction, which stands at an altitude of 12,000 feet. Before that I had been up to the head of the branch valley, which was also under deep snow.

The bulk of the Rhododendrons in flower at or above 11,000 feet belonged to the 'Thomsonii' series, and were of the Souliei type. But they showed great variation in flower colour, as well as in minor technical points, so much so that it was difficult to classify them until I began to tabulate their characteristics. Even so, it was quite impossible to say with certainty which were good species and which, if any, varieties or hybrids. According to modern ideas, no doubt they were all species; for it is the fashion at present to split hairs, and to issue from the herbarium, after comparison of a few dried specimens, a constant stream of new species, distinguished from each other by such features as the number of bristles on the ovary, or the number of scales on the midrib. From field observations, I should certainly call some of them species; others as certainly looked like hybrids, but curious hybrids having nearly all the characters of one parent, with some one new or more or less remarkable character of its own. But hybrids tend to merge the parental characters, and to lose the salient distinguishing characters of each; and the facts point quite as strongly to 'sports' or as we should say nowadays, mutations, as to hybrids, except for one thing. Most of them set no seed, or so little as to be almost negligible; which is just what one would expect of a hybrid.

Some of the species (or varieties) such as the ordinary yellow Souliei (K.W. 6,868) or the speckled white (K.W. 6,869) were abundant, and formed great colonies. Others were not merely rare, but rare in a particular sense, occurring as a few plants found in one spot, all together, and so far as my observation went, nowhere else.

FIG. 208.—TIBETAN HUTS IN THE SEINGHKU VALLEY.

Such were the two charming pink 'Soulieis,' K.W. 6,921 and K.W. 7,089, and to a less remarkable degree, the feathered cream 'Souliei' K.W. 6,922, and the yellow trumpet 'Souliei, K.W. 6,930. But while there might be some argument as to which were good species, and which were the pick of the bunch, there could be no two opinions about Cherry Brandy (K.W. 6,923), which flowered all by itself in July, when the others had retired by rotation. Here the judgment of Paris was safe from misrepresentation and (always excepting the solitary 'Rose Thomsonii,' K.W. 6,900), Cherry Brandy was unique, easily the most lovely, as it was the most unusual of the 'Thomsonii'; and it flowered alone in its glory, in July. But again I anticipate—June is still with us.

I add here an analysis of the 'Thomsonii' Rhododendrons collected.

No.	Calyx.	Corolla.	Filaments	Anthers.	Ovary.	Style.	Stigma	Pedicel.
6868	Small, margin glandular	Pale sulphur to milk white, with or without small purple blotch; occasionally flushed purple.	Puberulous	Brown	Glandular	Glabrous	Crimson	Glandular
6869	Large, glabrous	White, faintly speckled with purple, or not; five pit-glands.	Glabrous	Black-purple	Glabrous or slightly glandular.	Glabrous	Crimson	Glabrous
6921	Medium glandular	White, flushed pink, with five pit glands	Glabrous	Black-purple	Glandular	Glandular	Crimson	Glandular
6922	Medium, glabrous	Cream, conspicuously speckled with purple; five purple pit glands	Glabrous	Red-brown	Puberulous	Glabrous	—	Glabrous
6923	Small, glandular	Cherry red, or white, with Cherry-red band; pit-glands dark purple	Glabrous	Red-brown	Glandular	Glandular	Crimson	Glandular
6930	Medium, margin ciliate	Sulphur, with purple flash	Glabrous	—	Puberulous	Glabrous	—	Glabrous
6936	Small, glabrous	Pink	Glabrous	Black-purple	Glabrous	Glabrous	Crimson	Glabrous
6962	Small, glandular	Milk white, flushed purple, with large purple flash	Puberulous	Cream	Glandular	Glabrous	Green	Glandular
6965	Small, glandular	Pale sulphur, flushed red, purple at the base	Glabrous	Red-brown	Glandular	Glandular	Green	Glandular
7196	A glandular rim	Snow white, with small, purple flash at the base	Puberulous	Brown	Glandular	Glabrous	Green	Glandular
7189	Not seen in flower							

Seed was collected of all these, and it will be interesting to see how many of them come true to description.

It will be noticed that four species have definite pit-glands, *i.e.*, small, circular areas especially adapted for secreting honey. In the remainder, the base of the corolla is pinched up, or fluted, so as to form five pocket-glands, but here there is no differentiation of tissues. The former must therefore be regarded as the higher type, and the distinction between pit-glands and pocket glands may prove a useful taxonomic character.

The question of natural crosses is exceedingly interesting, and there seems to me good evidence that Rhododendron crosses were common here. It must be remembered that I was exploring in a country where life is rampant, not only in the teeming jungle below, but in the upper temperate forest, and in the alpine region also. New species are being evolved by the necessity for adaptation, or continuous adjustment to changing conditions—for clearly the great glaciers have retreated from the Seinghku valley in comparatively recent times. But under conditions so unstable, a fixed adaptation is almost impossible, and what we see is frequently no more than a hasty compromise.

---

* The previous articles on Mr. Kingdon Ward's Ninth Expedition in Asia were published in our issues of August 14, 28, October 9 and November 20, 1926, and January 1, February 19, March 5, 19, April 9, 30, and June 4, 1927.

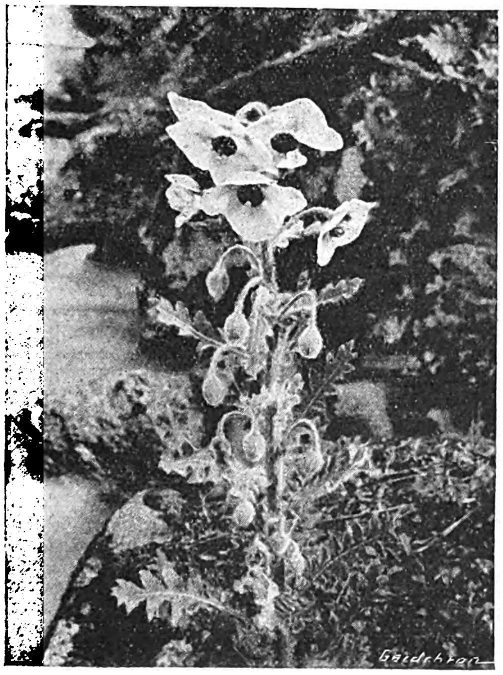


FIG. 209.—MECONOPSIS SP. GROWING IN THE UPPER SEINGHKU VALLEY AT 12,000 FEET ELEVATION. FLOWERS VIOLET.

Where conditions have remained fixed for a long time, as in the desert or the jungle, for instance, adjustment has been achieved, and highly specialised insects pollenate highly specialised flowers. Everything else has been eliminated. But where only a rough and ready relationship has been attained—and in alpine regions abnormal weather is the rule—the result is a greedy scramble. Hosts of insects, large and small, visit the flowers, not only for food, but also for shelter; and birds visit them for insects. In the turmoil everything gets mixed up, and pollen is moved about recklessly.

The 'Thomsoni' Rhododendrons, which were particularly abundant, showed by far the widest variation, and they were regularly visited by a small, brilliantly coloured Honeysucker. These birds undoubtedly visited the flowers of various Rhododendrons in order to get at the insects which took shelter there when it was raining; the wetter it was the more flies one found inside the flowers, and the more the birds visited them. But that it was probably the Honeysuckers, and not the tiny sand flies which pollenated the flowers seems to follow from the fact that the prostrate R. repens, which is visited by ants, but not by birds, set little seed.

In June, whole slopes were hotly lit up by the scarlet bells of R. repens, which formed interlacing mats on the turf or rock slopes; but vivid and conspicuous as they were, it was impossible for birds to get at them easily, by reason of their position. Nevertheless, the ant is an active and methodical insect, far more intelligent, one would suppose, than a fatuous sand fly; and yet, when autumn came, I was hard put to it to find capsules of R. repens, and I doubt whether one ripened seed where ten flowers had flourished. I had noted the same seed shyness in Scarlet Runner, in Tibet, which at harvest thanksgiving let me down in precisely the same way.

On the other hand, the bush, scarlet-flowered species ('Sanguineum' and 'Haematodes') and all the Thomsonii Rhododendrons, with the exception of the alleged hybrids, set seeds lavishly; and the inference is that the birds are safe pollenators, whereas the insects are more uncertain.

The arguments in favour of hybrid Rhododendrons in nature then amount to this:—

(i) The plants occurred singly, or in compact, confined clumps, in the midst of two or more other species, at least one of which had obvious features in common with the supposed hybrid. As a rule, both probable parents could be recognised by leaf and flower characters.

(ii) Each alleged hybrid was found once only, in that particular spot, and nowhere else. (That argument would apply equally well to a mutation; but taken with the other evidence, it supports the hybrid theory).

(iii) They either seeded badly or, in one instance, set no seed at all.

Three species of 'Thomsonii' Rhododendrons were abundant, forming presumably the basis of all the supposed hybrids, namely, K.W. 6,833, a forest tree with pinkish flowers; K.W. 6,868, a scrub species with sulphur flowers; K.W. 6,869, a bushy species, with white flowers, peppered purple. In addition to these, a fourth species, K.W. 6,923, with bicolor flowers was moderately abundant.

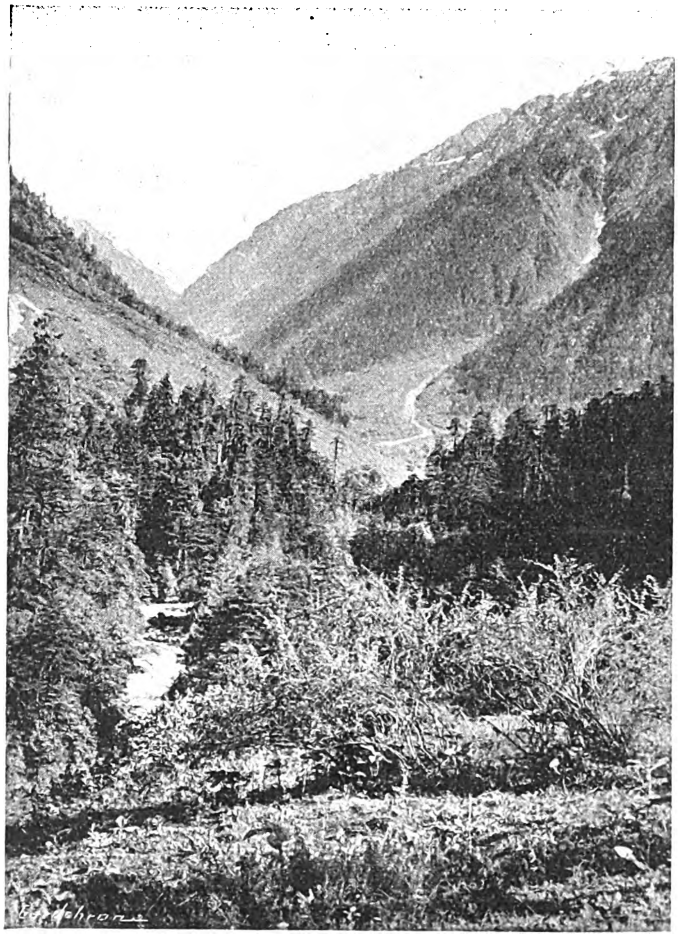


FIG. 210.—VIEW IN THE UPPER SEINGHKU VALLEY IN THE MIDDLE OF JUNE.

The following are believed to be hybrids:—

K.W. 6,900.—Possibly a 'Thomsonii' hybrid, but doubtful. The slight, hairy felt on the under leaf surface suggests 'Sanguineum' parentage. Only one bush found, on the outskirts of dense Rhododendron scrub. Flowered well, the flowers much larger than those of any other 'Thomsonii' Rhododendron met with, of a glowing rose-pink. Seeded moderately. A magnificent plant. It has been compared to R. Meddianum, which has a much larger calyx, a scarlet flower, and no flecks on the leaves.

K.W. 6,921.—Flowers white, flushed pink, with five pluming, shining pit-glands at the base, and crimson, mackerel spotting on the upper half. One or two bushes on the edge of dense thickets of 'Thomsonii' and 'Sanguineum.' Possibly a hybrid of K.W. 6,869. Flowered moderately, but only two or three capsules ripened.

K.W. 6,922.—Flowers cream, with a large, well-designed Prince-of-Wales Feathers picked out in crimson dots and dashes on the upper lobe. Half-a-dozen bushes scattered down the brink of an open, stony gulley, just beyond the dense Rhododendron thicket. Flowered moderately, seeded very badly. Possibly a hybrid of K.W. 6,869.

6,930.—Flowers bright sulphur, with a purple flash at the base. An isolated clump of bushes on an open grass slope. Flowered brilliantly, but set only moderate seed. Possibly a hybrid of K.W. 6,868.

K.W. 6,936.—Flowers pink. A clump of bushes surrounded by the white-flowered 6,869 and the yellow-flowered 6,868. Flowered freely, set fairly abundant seed.

K.W. 6,945.—A solitary plant growing on the edge of the Rhododendron thicket. Flowers over, but apparently pink. The leaves recall those of the Sanguineum K.W. 6,831. Only two flower trusses, and about three good capsules.

K.W. 6,962.—Flowers purplish-pink in bud, changing to milk-white, with a ruddy purple flush and a dark flash at the base. Flowered splendidly, seeded moderately.

K.W. 6,965, 6,966.—Hybrids, or varieties, of 6,868, growing together on the edge of the forest. One of them set no seed, the other very little, but out of flower it was impossible to distinguish them from each other, or from 6,868.

K.W. 7,089.—Flowers a charming shade of flesh pink. A clump of about a dozen plants found growing in the midst of the Sanguineum 6,831 and the Thomsonii 6,868. It set no fruit at all—the only species of which no seed was gathered.

K.W. 7,090.—Flowers carmine. Two plants growing amongst the small Lacteum, 6,954, and 'Scarlet Letter' 6,955, with the leaf indumentum of a Lacteum, and the flowers of a Sanguineum. It set a little seed.

K.W. 7,190. Not seen in flower. Two or three small bushes scattered in open thickets of R. Roxieanum (7,184), R. Souliei (7,189), R. heliolepis (7,108), and R. prunifolium (7,188). It has the Roxieanum type of fruit and the Souliei type of leaf, and set good seed.

From the above descriptions, it will be seen that most of the supposed hybrids are derived from Thomsonii forms, but that R. sanguineum, R. lacteum and R. Roxieanum are believed to enter into the composition of a few. *F. Kingdon Ward.*

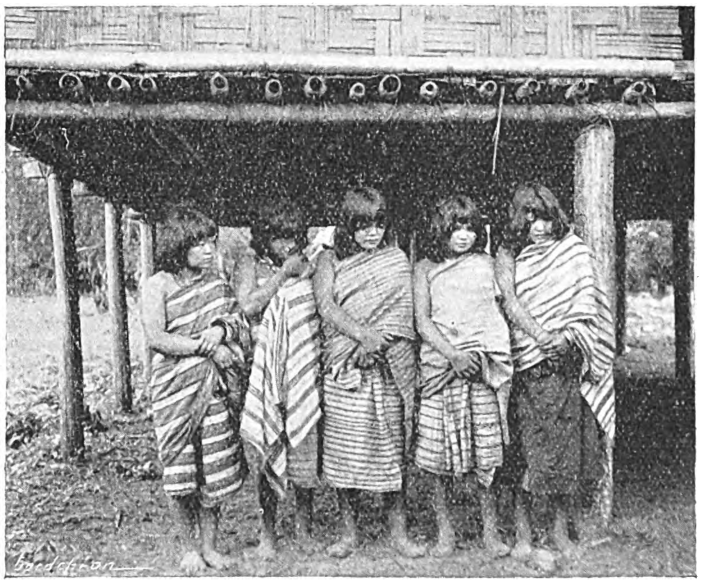


FIG. 211.—NUNG GIRL PORTERS IN THE UPPER IRRAWADDY HEADQUARTERS.

CORSICAN HORTICULTURE.

The lover of the garden cannot fail to be disappointed if he goes to Corsica hoping to see horticulture in a high state of development; and particularly if he expects to see in town and village beautiful flowers under cultivation, well-kept lawns and lovely shrubs. What it is possible to do may be seen, indeed, in the gardens attached to the hotels and villas, or in the grounds connected with Napoleon's Grotto at Ajaccio; but these do not represent Corsican horticulture as we should generally understand it.

While these remarks apply to Corsica as a whole, it should not be overlooked that a number of the wealthier inhabitants have begun in recent years to imitate their fellow countrymen of the South of France. More frequent intercourse between the Island and the Riviera, and the presence of a considerable number of English and American residents, have greatly stimulated the love of the garden during the present century.

Thanks to the enterprise of certain wealthy residents, and the influence of English and other settlers, there has been considerable progress in horticulture during the present century. Thus at Barbicaja one finds at an altitude of upwards of 300m. a chalet with a very fine garden which produces Bananas and Guavas as well as choice Mandarin and Blood Oranges. It is the purpose of the owner to establish here a school of floriculture. Flowers may also be purchased at Carrosacia, between Ajaccio and Alata. In connection with the Château de la Punta there is a large piece of ground known as Le Jardin Anglais which has been admirably laid out and stocked with rare trees and shrubs and a choice assortment of ornamental plants.

That flower gardens, lawns and shrubberies should be generally unknown is due to a variety of circumstances. I may, perhaps, put in the forefront the fact that it is unnecessary to cultivate flowers in an island which is a perfect Paradise during a great part of the year where it is possible for flowers to thrive. At their doors, in almost every part of the island, are to be seen at all times, except during the hot, dry summer months, such flowers as can only be found in England under the most careful cultivation. More common than any wild flower in the homeland is the tall Asphodel, which has become a weed and a pest. Splendid Spurges (Euphorbias) abound, bulbous and tuberous plants, such as the Crocus, Anemone, Squill, Cyclamen and Star of Bethlehem are ubiquitous, while the bush or maquis is aglow with various magnificent species of Cistus, Heath, Lupin, Salvia, Lavender, blue Pimpernel, all kinds of Broom and prickly Cytisus, Rosemary, Everlasting Compositae of numberless species, with Buttercups, Irises, Orchis and a thousand other lovely flowers in the moister places. The shrubs also include the Laurustinus, Myrtle, Phillyreas, Roses, twining Honeysuckles, Clematis, Smilax and a host of other plants whose fragrance and aroma are proverbial.

The native has not yet, however, developed that taste for flowers which is so marked a characteristic with ourselves. Moreover the small available plots of ground are in most instances insufficient for the growth of the necessary vegetables, food plants and fruits, and it is, therefore, practically impossible for the bulk of the people to find space for such a luxury as a flower garden. There is, further, an almost entire lack of the rich humus which is so great an asset in our island. Corsica is a land of mountains; and a land of mountains without any corresponding valleys. It is as though the Vale of Lorton and the fertile lands around Bassenthwaite, Keswick and Grasmere were taken out and Honister piled on Helvellyn, Cader and Snowdon on the Grampians, leaving only steep gullies and inaccessible crags between. Only by desperate and age-long exertions have small clearings been made here and there, and the soil in these is usually so stiff and heavy that great industry is required to make it fit for planting. This is true of three-fourths of the island at least; and it is only a few places, such as the district on the east of Ajaccio, and the malaria-stricken east coast, for example, that there is room for the plough, and soil which can be used for cereals. Among the mountains the plots set apart for vegetables and horticulture are frequently only two or three yards in extent, and have in many instances to be reclaimed from crag and rocky height where there is hardly space to swing the hoe or wield the long, straight-handled spade.*

As in almost all sunny lands, primary thought is given to the vine, and in many parts every available spot is planted with this invaluable servant of man. Vin ordinaire takes the place of tea and coffee or beer and minerals; these latter having only been introduced of recent days to meet the depraved tastes of the foreigner. Delicious water may be found in most parts of the island, but this is apt to be polluted, and some reliable beverage is always a desideratum. Hence, horticulture is in great part viticulture. Many other fruits are to be found in cultivation. These include Oranges, Cherries, Almonds, Apricots and Peaches, Olives, Figs and more rarely the Loquat or Japanese Medlar, the Carob and the Walnut. The Chestnut grows in vast plantations and is an invaluable tree on account of its nutritious fruit, and Walnuts are also grown; but these hardly come under the head of horticulture.

All the well-known salads and vegetables are grown in Corsica. In April one is served at lunch or dinner, even in the most inaccessible places, with Radishes and Lettuce, either as *hors d'oeuvres* with Olives and sardines, or as a salad. Spinach is frequently served as a separate course, especially in country inns, where a contract has been entered into to supply the foreign visitors with a given number of courses for each meal. The meagre supplies are eked out by separating the vegetables from the meat or the salad from the chicken. Beans and Peas, Gourds and Gherkins, Globe Artichokes and other well-known vegetables, find a place in most gardens of any pretensions. I have only once had the Globe Artichoke served up, however, in an appetising way, and usually find it a most unsatisfactory vegetable.

It is in April and May that the gardens are at their best. Most things, except in very high and exposed localities, are then as far advanced as they are with us in June and July, the season when garden produce is at its maximum.

There are great possibilities in Corsica for the landscape gardener, and particularly for any one who is skilled in rock gardening. A few of the more wealthy inhabitants have already set an example which is worthy of imitation. At Pino, for instance, connected with the chateau of the family of Piccioni, are some very beautiful grounds, and one finds in the Guide Book the remark—"*A côté, sur un rocher, est un couvent dont les jardins descendent en terrasses.*" That is just the way in which gardens must usually be laid out in a country like this. It was here that Dr. Bennet, who did so much to bring Corsica to the notice of English invalids, met M. Piccioni, who introduced him to the village priest. His words are of special interest in this connection. "We found the priest a tall, intelligent, fresh-looking, gentlemanly man of about forty, with a kind, good natured, simple expression of countenance. He was in the garden of a little square stone house that had been recently erected for him in a most picturesque situation. He showed us his vegetables and his flowers . . . then we had to drink wine he had made from his own vintage, and to eat bread made from corn grown on the mountain side." (*Op. cit.*, p. 367).

I shall not soon forget my visit to this charming locality. Close to the mortuary chapel of M. Piccioni, with its family tomb of lovely serpentine from Ersa, I found the only snake (Coluber elaphis probably) which I saw in Corsica, and from the banks and hedgerows culled quantities of the choicest of wild flowers and Ferns. Here I saw, what I had once seen stated elsewhere, the cultivated Pelargonium thrown out on a rubbish heap, flourishing as if it were in a greenhouse. I look forward to the day when many of the romantic heights will be crowned with a lovely mansion of local granite and the grounds picturesquely laid out in terraces with serpentine paths and motor roads. For health and beauty no situations that I have ever seen could surpass those which cry for the lover of the landscape garden in Corsica. And now that there is a regular airway between the island and the Riviera the distance from the more popular haunts of men is immaterial. *Hilderic Friend, Cathay, Solihull.*

---

* I have found, since writing the foregoing, a similar statement respecting Mentone in the middle of the nineteenth century in a volume which did much to arouse interest in the Mediterranean Islands and sea-board. See *Winter and Spring on the Shores of the Mediterranean*: J. A. Bennet, M.D., London, 5th Ed., 1875, p. 194, *seq.* See also Part II. for a valuable chapter on Corsica, with occasional references to garden-craft on the Island at that period.

THE GLADIOLUS.*

(*Concluded from page* 416.)

Gladiolus primulinus (species) was first shown at the Carnation and Fern Conference and Exhibition, in London, July 22, 1890, among a group of plants sent from the Royal Gardens, Kew. (See *Journal* R.H.S., XII, page CIV). It was described by the late Mr. J. G. Baker in *The Gardeners' Chronicle*, August 2, 1890. On August 22, 1904, it was again exhibited before the Royal Horticultural Society by Francis Fox, Esq. (later Sir Francis Fox, who died recently), of Wimbledon, who called it "Maid of the Mist," and it received a Botanical Certificate—votes unanimous. Mr. Fox stated that the plants grew in the Rain Forest, immediately in front of the Victoria Falls of the river Zambesi, exposed to perpetual spray.

On September 1, 1908, Messrs. R. Wallace and Co., Colchester, exhibited a strain resulting from the crossing of G. primulinus with gandavensis, and received an Award of Merit for the strain; votes unanimous. Messrs. R. Wallace and Co. state that their corms were obtained from the late Dr. Van Fleet, of U.S.A.

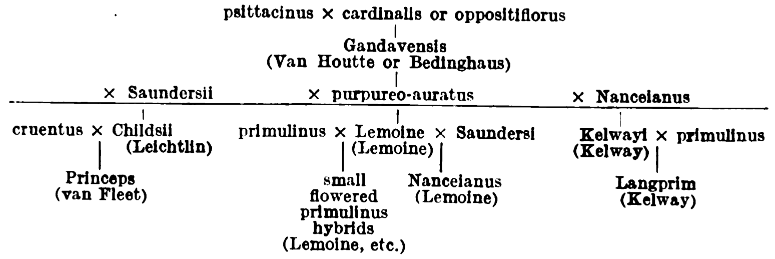
On August 16, 1910, Messrs. Kelway and Son exhibited Gladiolus primulinus (species), which was given an award of Merit by the Royal Horticultural Society. Mr. Francis Fox had sent some corms of the species to Messrs. Kelway and Son in the year 1905. He informed them that Mr. Townsend, who was in charge of the building of the Zambesi bridge in 1903, had collected these bulbs and had sent them to him. The writer handed them at once to Mr. F. Field, Gladiolus foreman, with instructions to grow them inside and outside, and to cross them as soon as possible with the best varieties of the large-flowered section, which the firm had so long cultivated, and which were descendants from Gandavensis and Nanceianus. The corms sent by Mr. Fox flowered in 1906, and were hybridised and used for hybridising. By 1910 to 1912 we had raised a stock of several hybrid varieties which were selected from numerous seedlings and named, and in 1912 the Royal Horticultural Society gave an Award of Merit and their Silver Flora Medal for our exhibit of the strain, and the National Gladiolus Society at the same show gave an Award of Merit for the variety named "Golden Girl," one of several named varieties which we exhibited. At that time, so far as anyone knew, they were the first named hybrids which had been raised or exhibited. *The Times* of July 17, 1912, referred to our exhibits as being "real novelties," and the various horticultural papers of the same period spoke of them also in the same way, and gave us the credit for having originated the section. One of the notices in 1912 mentioned that we had exhibited them before the R.H.S. at a previous meeting. This was probably in 1910. The Royal Horticultural Society's report reads as follows:—"Award of Merit.—To Gladiolus Langprim hybrid strain (votes unanimous), from Messrs. Kelway, Langport. This is quite a new strain of hybrid Gladioli, the majority of which are the result of crossing Gandavensis hybrids with G. primulinus. They are most graceful in habit, and exhibit a wonderful range of charming colours, including pure yellow, pale lemon yellow, apricot flushed with rose, reddish orange, orange and pink. They bear from twelve to fifteen flowers on a spike. The individual flowers resemble those of G. primulinus in shape. The strain includes the following named varieties:—'Banshee,' 'Elf,' 'Ella Kelway,' 'Ghost,' 'Josephine Kelway,' 'Queen of the Fairies,' 'Sylph,' and 'Wraith.'"

The first large-flowered hybrid varieties of this section which, so far as I know, were ever catalogued by anyone, were Golden Girl, Ella Kelway, Josephine Kelway, Wraith, Friendship, Banshee, and Elf, and all of these were offered to the public in 1913. We called the section Langprim, being desirous of connecting G. primulinus with Langport, the chief English home of Gladioli for half-a-century.

Mr. A. J. Bliss wrote to *The Gardeners' Chronicle* of October 2nd, 1926, stating that in 1905 Sir Leicester Beaufort, then Chief Justice of Northern Rhodesia, gave him 50 corms of G. primulinus which he had obtained from Mr. Francis Fox. Mr. Bliss gave some of these to Kew and some to Mr. W. C. Bull, of Ramsgate. Messrs. V. Lemoine and Son, of Nancy, France, crossed G. primulinus with yellow varieties of the Lemoinei section, and catalogued in 1908 the first hybrid, which he called G. primulinus major, and followed it up in 1909 and 1910 with G. primulinus salmoneus and G. primulinus maculatus. These are comparatively small in flower and very hooded, as would be likely, seeing their parentage on both sides, and belong to another section than the Langprims. Mr. A. Amos (senior) had hybrid seedlings of G. primulinus about the year 1910. The pure white variety was raised by Mr. A. E. Amos and exhibited in 1926.

In 1913, Messrs. Vilmorin Andrieux and Co., of Paris, exhibited at the Ghent International Exhibition a hybrid strain of G. primulinus, and again at the Gladiolus Society's Show at the Drill Hall in London in 1914, but, as was stated in *The Gardeners' Chronicle* in 1914, by Monsieur S. Mottet, "it had not been thought worth while to have named varieties."

This is as complete an account of the origin of the various sections of the garden Gladiolus as I can draw up in a succinct form. The kinds raised in recent years in Europe and America are legion. A great deal might be written as to culture and fertilising, and in description of the best varieties in each section, but I can only add a genealogical chart, which may be of interest.



James Kelway.

RAISING LILIES FROM SEED.

After twenty years' advocacy of the propagation of Lilies from seed, it is refreshing to find the case for the practice so well presented, as in the communication from its latest recruit on p. 352.

It is the case, as Mr. George Taylor has found, that seeds of all hardy Lilies may be sown out-of-doors, though whether to better purpose than under cover depends upon circumstances. The main advantage in sowing in pans in a frame lies in the protection afforded thereby, not necessarily from the weather, for on the whole, that is not the worst of the cultivator's enemies, but from the contingencies with which countrymen, as distinct from townsmen, have to deal. These contingencies are not all to be set down in black and white, for many are sporadic and some—like the frost of the last week of April, a May hailstorm or a spring and summer drought—may only recur at long intervals. None the less, they have to be reckoned with. It is not so many years, for instance, since a covey of partridges made a dust bath of a bed of some hundreds of seedlings of Lilium Parryi in my garden, with results better imagined than described, and once pheasants discover seedlings of the edible Lilies, which include many of the Chinese and Japanese species, they can be an intolerable nuisance, though less destructive, perhaps, than mice. Do what one will, an occasional hare or rabbit will find its way into a garden, and though these creatures usually relish the growing stems of adult Lilies, I have known them to eat down a bed of seedlings. Many gardeners, too, must have "had the cows in" at one time or another, over their seed beds. Slugs, again, as well as wireworms and millipedes, among other insects, are capable of serious damage to seedlings.

All these troubles and others can be brought much more readily under control in frame cultivation than in the open, but for commercial work the expense of the former is a consideration, and it is only in the case of seeds which are difficult to obtain that pan cultivation seems essential. Provided ample supplies of seeds are available, one may follow Nature and sow the seeds in the open, and if suitable precautions are taken, the inevitable wastage is not nearly so high as it is when Nature is left to herself.

It cannot be too often reiterated that frost has no harmful effect on the seeds of Lilies; on the contrary, germination usually seems better after a frost than when there has been none. Frost certainly does seedling bulbs no harm, and had we no experience of our own to guide us, the practice of the Eastern North American nurserymen would show the way, for in the winter months their pans or boxes of Lily seeds and seedling bulbs are frozen hard for months. The severity of the test may be gauged by this extract from a note sent to me by Mr. T. A. Weston a year ago. "The several sorts of Lilies were sown last spring and were later pricked out into boxes, these being sunk to the rim and stood in a flat, rough frame, eight inches deep, with glass sash. Heavy straw and bags were piled on after December freezing set in, and I saw no more of them till March was well in, when I found the Lilies still holding their seed leaves. In the same frame were many pans of Primroses and perennials. Eremurus seedlings, even Primula kewensis and P. obconica (Chenies strain), very small, survived, and several forms of Primrose seed had started germinating. Without doubt, every pot and box of soil was frozen solid and even below; the soil in the pots was literally heaved up an inch or more above the pot edges by the frost. I pressed it down later, but in many instances the pots were broken." I have often seen both seeds and bulblets frozen in this country without the smallest hurt, and have deliberately put them in the way of punishing cold; but when the young leaves of tiny, scarcely formed seedlings are cut down wholesale, just as they have speared through the ground, as they were in open beds at the end of last April, it is a different matter. However, perhaps even that calamity can be guarded against by intelligent anticipation, though most people seem to have been caught napping on the particular occasion. Branches of Pine or some other Conifer laid flat on the seed beds, and if necessary pegged down, make an excellent frost screen for Lily seedlings. Once the latter show their seed-leaves above ground the application of a mulch of leaf-mould is of little use as protection from frost, because of the risk of suffocating the seedlings; if applied before the seed-leaves appear, the object of the mulch is negatived, because the leaves spear through the mulch and are at the mercy of late frosts. It is not the earth of the seed-bed which needs protection, nor the bulblets in it, but the tiny leaves themselves. If, however, a mulch is of slight use as protection from frost in winter and spring, it is invaluable in a summer drought. Though climate and circumstances alter cases, it is generally wise, in the south of England, at any rate, to sow Lily seeds when ripe. In the case, for instance, of the June-flowering group, which opens the Lily season, the seed capsules usually begin to gape at the end of July. The precise date depends on the weather, and in some years it may be a fortnight later than in others; but if freshly ripened seed of L. tenuifolium, for example, is sown in the open in late July or early August, it will soon germinate like Mustard and Cress, and, given reasonable weather, the seedlings will finish their first growth before winter, beginning to grow again in the following spring. If the seeds are not sown until late autumn they may not germinate until the spring, unless the winter happens to be a mild one.

---

* Reprinted from the *Year Book* of the British Gladiolus Society, 1927.

Germination undoubtedly depends, in some measure, on the ripening of the seeds, and that which is harvested in a dull, damp summer or autumn does not germinate so well or so quickly as it does in a roasting harvest time. In 1921—the last hot summer—seeds of L. regale sown in September germinated in three weeks, and the percentage of seedlings was exceptionally high. On the other hand, the crop garnered in 1925 was slow to germinate, and much of it came to nothing. The soil is warmer in the autumn than in the spring, and that helps germination, as anyone may see; on the other hand, seeds of Lilies sown in heat in a frame or house ultimately make no more rapid progress than that sown out-of-doors. As a genus, Lilies seem to resent any attempt at codling or forcing in the initial stages, and though bottom heat will expedite the actual date of germination in the case of some species, subsequent progress is no quicker than it is in the open, while casualities are far more numerous.

No matter when it is sown, the seeds of some species remain dormant for what is often loosely referred to as a year, and then only germinate in the spring. Actually it may be the second spring after the sowing, as we may see in the case of seeds which, though sown next August, do not germinate until the spring of 1929. The reason of this is not clear and though unable to be certain of it, I am under the impression that it is habitual with some species. As long as the seeds are plump they should not be discarded, and the thumb-nail will settle that point.

As that master-cultivator, Max Leichtlin, pointed out long ago, Lily seeds are usually covered with too thin a layer of soil, and provided the compost is suitable, a covering of half-an-inch is not too much. There is little risk of heavy rain or careless watering washing out seeds sown at that depth, either out-of-doors or in pans.

Seminal propagation is not the only method of raising Lilies, and when it is desired to propagate hybrids or varieties which are not fixed, it is useless. In such cases, propagation by offsets, bulb scales or stem cuttings is a sure method, and the offspring is then a replica of the parent.

In answer to the enquiry from Mr. Carruthers on p. 417 as to the germination of L. regale seed, I do not think I can usefully add anything to the original account on p. 302 of a test of a sowing of this seed in two parallel beds, with and without manure. There is nothing abnormal in the flowering of L. regale in the year in which the seed is sown, and the point has been noticed by others besides myself. The proportion of flowering seedlings in the first year, however, is as small as the plants themselves. They are seldom more than eight or nine inches high, with a single, small flower. If the season is propitious, a capsule—also small—will follow the flower, and if the seed in that is ripened and sown, it may develop a flowering bulb or two in the following year; so that one may have two generations of small flowering bulbs in as many years.

The germination of Lily seeds out-of-doors is undoubtedly affected by the weather. In the dull, inclement spring of 1926, germination was most unsatisfactory, and it is not much better under almost the same conditions this year. *A. Grove*,

SULPHATE OF AMMONIA AND BOWLING GREENS.

I READ with interest the article "On Lawns" (*Gard. Chron.*, March 19, p. 187) regarding the use of sulphate of Ammonia for American lawns. Before the use of such large dressings of sulphates are tried in this country, some data of the circumstances in which they were used in America would be necessary, as the climate, rainfall and physical and chemical conditions of the soil vary greatly in different parts of that continent.

In the Glasgow district, where the soil is mostly clay or of a heavy nature, and there is a rainfall of forty-two inches per year (in some wet months a fall of four or five inches), no green-keeper would care to tackle the result of a dressing of one-and-a-half hundredweight of sulphate of ammonia per acre per fortnight.

Here, where a hard-wearing turf on bowling greens is essential throughout the playing season, the use of sulphate of ammonia has been practised for some time past. The success of the treatment has been such that during the hottest and driest spells of last year our greens were quite green and finished the season in perfect order. Each green is 126 feet by 126 feet, laid level, with a ditch round, and well-drained. The turf was obtained from Cumberland and Ross-shire, the Cumberland turf a good loam and the Ross-shire turf a peaty mixture. The grass was originally mostly a Festuca, with a good lot of Sea Pink in it. The Sea Pink generally dies out the first season, leaving bad, brown patches.

During the spring treatment the greens are lightly dressed with a bowling green mixture of seed obtained from a reliable source. This has overcome successfully the loss of the Sea Pink and other maritime plants that may have been in the original turf, so that with local grasses that have established themselves in the greens we have a sward of a very composite nature, but under our treatment a good-wearing one for public service.

The soil being naturally acid and the rainfall heavy during winter and spring a badly-worked green would soon become sour, quite different from a green well-worked and an acid balance kept in it. We keep our greens aerated by thorough piercing, and this is done by a special piercing fork which has four prongs, about four inches apart, of half-inch, rounded steel, usually eight to nine inches long when new; the handle arises between the two centre prongs as in a common garden fork, but without a bend, being perfectly straight, with a T-handle at the top. The green is pierced by this tool in the autumn, the method being to start in one corner of the green and to work diagonally across in rows about six inches to a foot apart. The greens are sanded with seaside (wind blown) sand at the rate of four to five tons per green, and dressed with three hundredweights of bone-meal per green. Nothing more is done until March, when the greens are thoroughly harrowed. This piercing and harrowing I contend to be essential to check any sourness, fairy rings and moss that may be due to excessive rainfall, undue rolling or overdosing with manure.

The harrow is one of the best eradicators of Clover and prepares the surface of the green for the spring dressing of grass seeds where this is necessary because of a thin sward. The type of harrow used here is a piece of wood four inches by two inches by five feet (Fig. 212). Into this is fixed the teeth made out of four-inch wire nails, the ends of which are heated and flattened into a blade for about one-and-a-half inch up. The driving head is cut from the nail so that it may be driven into the wood until it protrudes right through, thus enabling the teeth to be driven back a little when they wear. The teeth are fixed in three rows, one-and-a-half inch apart in the rows, with the edge of the blade towards the worker, but so fixed that each tooth takes its own course, thus giving a line of scratches half-an-inch apart the full length of the five feet. To this arrangement is fixed a handle six feet long, and set at about 30°. A T-piece at the end allows two men to pull the harrow along, after it is weighted with a small bag of sand to make it bite into the green. The greens are harrowed straight both ways and diagonally both ways, and a mowing machine follows, with a box to pick up what is torn up; or else the green is swept. This treatment is repeated if the greens are infested with Clover or moss. A good dressing of artificial grass manure is given, about two hundredweights in all, one hundredweight at a time, the last hundredweight being applied two weeks before the opening of play, usually in May.

Throughout the playing season a dressing of 7℔ or 8℔ of sulphate of ammonia is given each green every two or three weeks, and watered in. This works out at one-and-a-half hundredweight per acre during the playing season, from May to September, and we have proved that it keeps our rinks perfectly green, and enables them to wear well—and everyone knows the abuse a public green gets.

For private greens, where a keener surface is demanded, a green-keeper who used ammonia would also require to be a good scytheman. To get his greens close down for keen play a scythe must be used, but a good scytheman with a special sned and correctly-set blade would, on a dewy morning, cut a green in two or three hours. Scything should be followed by the mowing machine, with the box on, to pick up the grass. Sulphate of ammonia does not appear to penetrate deeply, but it stimulates the finer top grasses, giving them power to overcome the coarser and deeper-rooted weeds and grasses. Where time permits, a pinch of ammonia set in the middle of a Daisy or Plantain will kill it outright. This, however, will leave a patch in the lawn for a while, but the grass soon grows over it with astonishing vigour, stimulated thereto by the ammonia that killed the Daisy.

On tennis lawns and lawns where clover is prevalent a good harrowing and a dressing of sulphate of ammonia during showery weather, would soon help the grass to overcome the Clover. Of course, piercing need not be done every year unless any effects caused by stagnation are evident. Heavy watering by a hose or other means on lawns that have been turned up in dry weather is of little avail; in fact, one may sweep up baskets of dried grass washed off the sward by such waterings, and in a day or two the lawn is as dry as ever. A small dressing of sulphate of ammonia retains the moisture and if previous dressings have been given, so much the better, as I think the deliquescent nature of sulphate of ammonia enables the soil to hold the moisture. Care should be taken in using sulphate of ammonia, as great damage may be done by careless distribution, over-dosing, and not using sufficient water to dissolve it. *W. G. R., Glasgow.*

SEASONAL PESTS AND THEIR CONTROL.

WHITE AND GREEN FLY UNDER GLASS.

THESE two pests have appeared somewhat early this year, in spite of the exceptionally unfavourable weather during the spring. Undoubtedly the best method of keeping them in check is to destroy them in the early stages before they have had time to spread.

Fumigation is now generally considered to be the most satisfactory method for eliminating pests under glass, owing to the fact that the vapour or gas used will permeate all parts of the house and destroy the creatures.

In the early stages, however, when the plants are on the young and tender side, the grower has to decide whether it is desirable to fumigate a whole house in order to kill a few flies, or adopt some other means for preventing them from spreading. For this purpose either spraying or dusting is to be preferred.

Undoubtedly, dusting is the nearest to fumigation and may be applied to small, localised patches. A dust containing two to three per cent. nicotine incorporated with an inert material, such as lime or gypsum, and applied by means of an ordinary dusting machine, of which there are large numbers on the market, would be found quite suitable. When spraying, a nicotine wash is to be preferred.

The destruction of green fly is not a difficult matter, but in the case of white fly, once it is disturbed it rises from the plant, therefore dusting is the most satisfactory method in this case.

Many fumigants may be successfully used. Nicotine, at the rate of one-eighth to one-quarter ounce per 1,000 cubic feet, vapourised, in a suitable pan placed over a spirit lamp, night lamp, etc., has been found very successful. Another useful modification is Tobacco shreds or paper. This consists of paper which has been impregnated with saltpetre containing nicotine and then allowed to dry. The former material helps to make the paper smoulder, thereby vapourising the nicotine. Usually these shreds are manufactured to contain thirteen to fifteen per cent. nicotine, and one pound is sufficient to treat approximately 20,000 cubic feet.

It is questionable whether nicotine by either of these methods would be effective in controlling white fly; it is only susceptible to certain chemicals in the same way as green fly.

Tetrachlorethane, which is familiarly sold as white fly fumigant, is only specific to white fly; it does not appear to affect green fly. For the former pest it is used at the rate of two-and-a-half to five ounces per 1,000 cubic feet of space, either by impregnating sheets of canvas suspended from the wires, or by sprinkling it on to heaps of coke or other absorbent material contained in seed-boxes or trays. It is most important that this fumigant be kept out of the soil. The old method of sprinkling it along the central path of the house is to be highly deprecated, owing to the fact that the material does not decompose in the soil, and remains for a considerable period of time, making the soil absolutely unsuitable for growing purposes. When using this chemical it should be carefully noted that certain plants are particularly susceptible to its fumes, and it should not be used under any circumstances in houses containing Chrysanthemums or Cinerarias; there are other plants which are only partially affected.

For the general fumigation of glasshouses, both commercially and otherwise, cyaniding is advocated, although with an effective material, such as cyanide, it must be remembered that the margin of safety is very much smaller than with less effective chemicals.

Undoubtedly calcium cyanide is to be preferred to the old-fashioned sodium cyanide used by the pot method, simply because it gives off its gas slowly in the presence of atmospheric moisture and carbon dioxide; secondly, the plants are not subjected to very sudden concentrations of hydrocyanic acid gas, as in the case of the sodium cyanide method.

It must also be remembered that no matter what fumigant is used, it will always produce a seen or unseen checking influence upon plant growth, because it produces an unnatural environment. Therefore is is far better to adopt the method of small doses at frequent intervals.

Calcium cyanide is commonly used at the rate of a quarter-of-an-ounce per 1,000 cubic feet, but this requires modifying according to the period of the season when the cyaniding is done. *Theodore Parker.*

MARKET FRUIT GARDEN.

THE drought has been very severe in my district, only 0·95 inch of rain having fallen in seven weeks. The rainfall of May was 0·82 inch, and this fell in such light showers that the ground was scarcely moistened. It was so hard, indeed, that no cultivation has been possible amongst bush fruits, beyond mere scratching of the surface with hoes to kill weeds. In spite of this, the drought has not done so much harm as might have been expected. Black Currants and Gooseberries certainly look as though they needed rain, as the leaves are poor in colour; but they are holding their fruits so far and the latter are swelling normally. No doubt there is a good deal of moisture in the ground after the heavy rains of March, but one would have expected it to dry out quickly by evaporation in the absence of good surface cultivation. Possibly the avoidance of root disturbance is ample compensation. As for tree fruits, these have not suffered from the drought; in fact, they are particularly clean and luxuriant.

FRUIT PROSPECTS.

The full extent of the damage done by the late April frosts can now be stated. In the case of my plantations, probably owing to their proximity to the sea, the injury was not so serious as in many places, though bad enough. Victoria and Pond's Seedling Plums were practically wiped out. Czar and Rivers' Early Prolific escaped, and will constitute almost the whole of the Plum crop, which will therefore be very light. These two varieties have set well, and the fruits appear to be stopping on. Pears are a failure, with the exception of Fertility, though there was no apparent injury to the bloom. Cherries, which I do not grow on a commercial scale, have set a good crop. Apples were not harmed, unless the somewhat light setting of Beauty of Bath, after profuse blooming, can be attributed to low temperature. Worcester Pearmain looks very promising, and other dessert varieties will carry satisfactory though not heavy crops. Almost all cooking varieties show good promise in my plantations, including Bramley's Seedling, which suffered severely from frost in many other places. Turning to bush fruits, Black Currants, my main crop in this department, look promising, but need rain urgently. Only in a few low-lying spots was the bloom destroyed by frost. Gooseberries were not so fortunate, Whitesmith being almost entirely cleared off, whilst Careless suffered much less. These remarks apply to my own plantations only. In low and exposed positions in the district much more damage was done, Black Currants, in some cases, losing seventy-five per cent. of their bloom and Strawberries about the same. Taking the country generally, the extent of the damage by frost in market plantations was very extensive. In most of the principal fruit-growing districts it may be said that the only plantations that escaped were those situated near the sea or some 300 feet above sea level. The orchards visited on the occasion of the recent National Farmers' Union's tour of fruit farms in mid-Kent demonstrated the importance of situation in connection with frost injury. On the lower ground prospects are distinctly poor, whilst some of the plantations on the hillsides promise to give good crops of Apples and even, in some cases, a fair yield of Plums. Cob-nuts appear to be a failure.

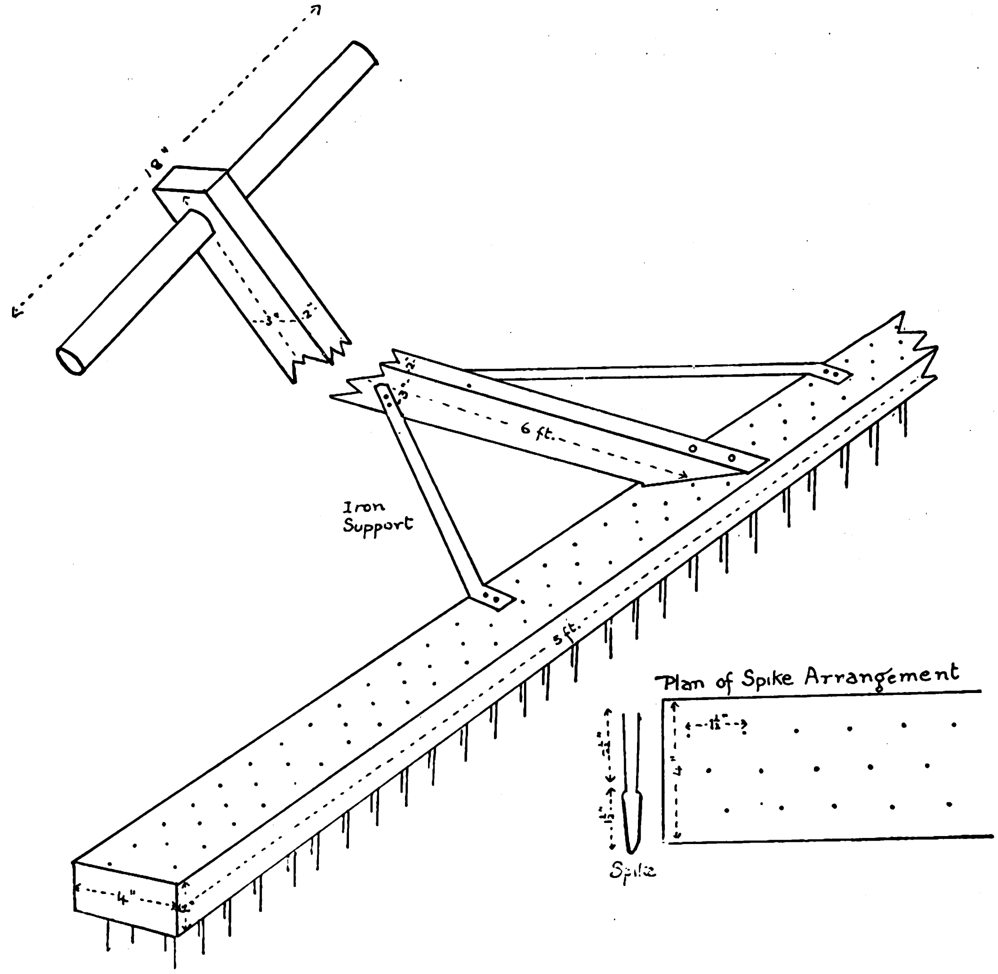


FIG. 212.—HARROW USED ON GLASGOW BOWLING GREENS.

(see p. 436.)

APPLE SCAB AND MILDEW.

I should be disposed to complain more about the drought if it had not done me one very good turn; it has held Apple scab in check as nothing else could. My weather records show that Apples are clean in seasons when we have a dry May. It was so in 1922, when the rainfall of the month was only 0·56 inch, and in 1919 when it was 0·25 inch. In the year of the great drought, 1921, there was a lot of scab; but then the May rainfall amounted to 1·33 inch. Even where no spraying has been done there is very little scab to be seen so far. For all that, I do not regret having carried through my own programme of spraying, for mine is a bad district for scab, and there are signs that it would have developed to some extent if no preventive measures had been taken. A few spots of the disease can be found on the earliest leaves, but obviously suppressed by the Bordeaux mixture still to be seen on the surface. One row of Beauty of Bath (not a particularly scabby variety) which I left unsprayed, shows a good deal of the disease on the first leaves; but, so far, it has not spread to the fruit. For the second spraying, given just after the fall of the petals, I used lime-sulphur with arsenate of lead throughout, giving up the idea of using excess-lime Bordeaux mixture on such varieties as will stand it. It is a nuisance to have to change about from one wash to another as the work proceeds; and I decided to play for safety by employing very mild washes. Most varieties had lime-sulphur at one in eighty, and Cox's Orange Pippin and Beauty of Bath at one in 100, in both cases with arsenate of lead, which increases the fungicidal value as well as serving to kill caterpillars. Up to the present, neither wash seems to have done any harm. I shall carry the programme right through by giving a third spraying with the same washes about three weeks after the last, in the case of those late varieties of dessert Apples which are particularly liable to scab. Even if this is not necessary to protect the fruit, it may be expected to do much good by keeping scab off the young shoots, and so helping to prevent a bad attack next season. I think it is a mistake to omit spraying against this disease just because we have a little dry weather. It is surely better to regard such a season as a grand opportunity to gain the upper hand over scab, since the results of spraying are known to be cumulative.

In one plantation lime-sulphur has been used throughout. The control is just as good as where Bordeaux mixture was employed for the pre-blossom application. Owing to the favourable nature of the season for scab control, it would probably be unwise to conclude that this might always be expected to answer as well, though there is a great temptation to do so. For one thing, the preparation of Bordeaux mixture is troublesome on a large scale, and ready-made preparations are useless and dangerous. Then there is Apple mildew to be thought of; and lime-sulphur is a much better preventive of this than is Bordeaux mixture. Mildew has been growing more formidable for several years; and this season there is more of it than I have ever seen before. When it attacks only a few shoots here and there, as it used to, it does little harm; and it is not a big matter to cut off the affected shoots and burn them. But it can increase until it becomes a serious disease, dwarfing the tree and spoiling the fruit. Early spraying with lime-sulphur gives the best control. The plantation referred to above is quite free from mildew this year. Bismarck is commonly one of the worst varieties for mildew, but this year the trouble has appeared on many varieties, notably Newton Wonder.

APPLE BLOSSOM WEEVIL.

Apple bloom was so long in the bud stage this year that it is not surprising that a considerable proportion of the blooms should have been capped by Apple blossom weevil. It is remarkable that so little fuss is made by growers about the damage caused by this pest. When some seventy per cent. of the bloom is lost through frost there is a great outcry; but not when, as often happens, weevil causes similar loss. In a year like the present, when bloom was very profuse, the weevil damage does not matter much, except where frost has already taken a heavy toll. It may even be considered as an advantage, as it obviates the need for artificial thinning. The weevil is generally obliging enough to leave one fruit to a truss; and that is about all it has left on some varieties this season. The amount of fruit hanging singly in my plantations is quite surprising. At present, I think, it makes the crop look smaller than it really is. When the Apples have swelled out, I fancy they will present a very pretty sight, as they seem to be evenly disposed over the trees and are unusually clean, regular in shape, and uniform in size. In a season when there is little bloom, however, the weevil is an unmitigated evil. Unfortunately, there is no real practical method of controlling it. Sacking bands properly fixed around the stems of the trees trap a large number of the insects; but I do not think that the pest has even been noticeably reduced in any orchard by this laborious method. The only thing that does make a wholesale clearance is the running of ducks under the trees. A neighbour's plantation in which Indian Runner ducks have been penned thickly for two or three years, is practically free from weevils, although there used to be plenty before the ducks were introduced.

RING BARKING.

Growers in the Wisbech district are much interested in the practice of ringing fruit trees with the object of bringing them into bearing. In that locality growth is apt to be sappy and excessive; and it is found that ringing reduces vigour and brings the trees into bloom in the season following the operation. A ring of bark, right down to clean wood, is taken off half way round the stem. A few inches lower down another half-ring is removed, on the opposite side to the first. The space between the two rings should be about equal to the thickness of the stem or branch being treated. In the case of very vigorous trees the rings are made rather more than half way round the stem, as it is found that, the more the ends overlap, the greater the reduction in vigour. The work is done during May, and is said to be useless if tried later. The practice is old, of course, but the method seems to be new.

PRUNING RED CURRANTS.

The training of Red Currants up to bearing age by the usual methods seems to me to be a slow business. I have been trying for three years to produce large bushes from material which was none too good when it came from the nurseryman. Last winter, when they were pruned, I thought that, at last, they would begin to reach a fair height and begin to carry useful crops, as there were plenty of clean shoots to serve as leaders. I now find, however, that in most cases they have failed to shoot from the buds to which they were pruned, but are shooting instead from lower down. I had just concluded that the orthodox method of pruning Red Currants was mistaken, when a grower who specialises in bush fruits, and grows them thoroughly well, happened to mention that his Currants this year are behaving in exactly the same way, a thing he has never known before. I suppose, therefore, that the peculiar season is to blame. For all that, I am not at all sure that the bushes could not be formed more quickly without so much shortening of the leaders. They must, of course, be cut back when first planted; but once the required number of leaders has been obtained, I see no reason why they should not be allowed to extend full length, without tipping, for a few years. There is no object in getting spurs to form close to the ground, as the fruits get too soiled to be of any use. The main thing, it seems to me, is to get the branches well up into the air before they begin to fruit. Once the bushes have begun to bear, the orthodox annual severe shortening of leaders and spurring of all laterals is quite likely correct, if only because it produces large fruits and a crop which is easy to pick. At the same time, I have noticed that bushes which are grown more naturally crop remarkably well. *Market Grower.*

WALNUT LEAF EXTRACT AS AN INSECTICIDE.

Some while ago, I called attention to the use of infusions of Walnut leaves by our forefathers in destroying insect pests. In the recently issued *Catalogue Descriptif* (1927) issued by the Société Pomologique de France (p. 362) the same substance is recommended for the destruction of the root form of the Woolly Aphis (Schizoneura lanigera), as follows, when translated :—"For destroying the colonies which have hibernated on the roots, it is advised to dig out a sufficiently large basin around the tree in March, and to water the area with a very strong decoction of Walnut leaves, finally to place the residue of the leaves which have made the decoction into the dug out basin. Thus perfect results have been obtained on strong cordons by using five litres (rather more than a gallon) of decoction; this dose may be increased according to the size of the tree."

Evidently the leaves must have been collected the previous season, for in the South-west of France, and even so far south as Majorca, Walnut trees have not yet broken their leaf-buds at the end of March. *H. E. D.*

ROSE GARDEN.

SOME GOOD NEW AND NEWER VARIETIES OF ROSES.

With the ever-increasing addition to the number of new Roses the grower is bewildered as to what varieties to select for his garden. The following Roses have all been introduced during the past few years, and in my opinion they are all worthy of planting. Most of them are hardy and vigorous in growth, whilst the colours and fulness of the blooms are in every respect satisfactory. Although situation, soil, and district have a great deal to do with the success of Rose growing, all the undermentioned varieties will succeed in most gardens.

Lord Lambourne is a variety of vivid colouring; buttercup yellow, the petals being margined with carmine-scarlet, similar to Sunstar. The flower is of perfect contour, of immense depth and large of petal; it is a useful Rose for all purposes.

Betty Uprichard is very popular and grown extensively. The colour is a delicate salmon-pink passing to carmine, the reverse of the petal being glowing carmine, with a coppery sheen and a suffusion of orange. The bloom is sweetly perfumed and makes an ideal flower for vase or table decoration.

Lord Charlemont is a large, full, crimson bloom; the variety is useful for massing and supplying cut blooms. It is a Rose of strong constitution.

Lady Inchiquin is a superb Rose; the colour is orange-cerise. The plant makes strong growth and crops freely. The blooms are full, perfect in shape, and sweetly perfumed; it is a splendid decorative variety.

Hawlmark Scarlet may be highly recommended as a garden and decorative Rose. The flowers are of medium size, sweetly scented and of a brilliant colour; this variety is in bloom until late in the autumn.

Angéle Pernet is a Rose of remarkable colour—vivid orange-yellow, shaded deep reddish apricot and fiery golden yellow. The blooms are sweetly scented, the growth clean and strong. It is a very fine addition to the Rose garden.

Lady Sylvia is a highly-coloured Madame Butterfly, with similar growth and shape to Ophelia.

Scarlet Glory is a very vividly coloured Rose, and will comply with satisfaction to all requirements. It is a splendid variety for bedding purposes and withstands wet weather much better than most Roses.

White Ensign is white, flushed with delicate cream at the base of the petals. When cut the blooms remain fresh in water for a long period.

Shot Silk is a bedding Rose of great merit. The colour is bright cerise, overshot with salmon-orange, flushed with rose and veined with buttercup-yellow. The growth is vigorous and clean.

Mrs. Courtney Page is a superb variety. It is sweetly scented and coloured orange-cerise, with carmine shadings; the flowers are large and have petals of great substance. The plant is of strong growth. It is an ideal Rose for all purposes and should be planted in every garden.

Captain F. S. Harvey Cant is not so generally known as its merit deserves. The blooms are ideal in every respect and charming in colour. The growth of the plant is strong and clean. The flowers are carried on long stems which makes them very suitable for arranging in vases, etc. The colour is rich salmon-pink, veined scarlet and suffused with yellow. It is a charming Rose with every good quality.

Florence L. Izzard is a Rose of strong growth with beautiful, glossy foliage. The blooms are of a deep buttercup-yellow, long and pointed, of fine substance, perfect in form and highly fragrant. It is one of the best yellow Roses in cultivation.

Rosemary is a beautiful variety of deep carmine and old gold colour, with a Damask perfume, a Rose of sweet fragrance. *G. L.*

FRUIT REGISTER.

PEAR MARGUERITE MARILLAT.

If this Pear were of no value as a comestible, it might well be grown for its truly beautiful appearance; the very large, almost enormous fruits are uneven in outline, pale clear yellow with scarlet flushing. The flesh is pale yellow, juicy, and quite pleasant to the palate, although real excellence of flavour cannot be claimed for this showy variety. The fruits ripen during September and are improved by gathering and storing before they part readily from the tree.

The tree is of upright, vigorous growth, and should be subjected to hard pruning; it makes a good bush, and as a trained specimen will produce excellent fruits of gorgeous colouring. It is a regular cropper.

It is not a very old Pear; it was raised in France about 1870, by M. Marillat, a nurseryman. *A. E. R.*

APPLE BELLE DE BOSKOOP.

This Apple is of Dutch origin, and was introduced to this country about the middle of the last century. It is usually classified in nurserymen's catalogues as "culinary or dessert," and as it is in season from December to April, it is very useful for the latter purpose. Although the fruits are inclined to be rather large, they are of handsome appearance, having a ground colour of golden yellow, partly covered with russet and generally flushed with red on the sunny side. The flesh is crisp and of good flavour.

The tree is of moderate growth and makes a good bush; it is a free cropper, and may be highly recommended for the garden. *J. Wilson, Wisley.*

VEGETABLE GARDEN.

HOEING BETWEEN CROPS.

Strict attention should be given to the hoeing of the soil between crops. This operation is, in conjunction with deep tillage, the primary secret of successful vegetable culture. By the loosening of the surface soil fertility is increased and, paradoxically, the soil becomes drier on the surface and also retains more moisture below. Thousands of seedling weeds are destroyed by the operation, while many diseases are prevented and attacks by insect pests rendered less liable.

By the destruction of weeds the gain in the saving of plant food is immense. Hoeing should be performed with systematic regularity, as frequently as the weather permits; hoe deeply wherever possible. Strengthening of the crops will be noticed almost immediately where persistent hoeing is practised.

Seed-sowing on heavy soils this season has had to be accomplished, in the majority of cases, on lumpy seed-beds. In the Home Counties the effects of frost during the early spring was of little avail in rendering the soil friable owing to the abnormally heavy rainfall experienced during the latter part of February, March and early April. The soil was beaten down flat and hard, and in nearly all cases necessitated re-digging. The east winds which followed and the resultant dry weather necessitated hard labour to break down the soil sufficiently for sowing.

After sufficient rain has fallen to soak the soil through, all parts of the garden should be hoed. Hard lumps will then fall to pieces quite easily. *James A. Paice.*

LEEKS.

The Leek is one of the hardiest of vegetables and useful for cold localities, being a general favourite both in Scotland and in the north of England. Although it may be had in season from August to May, it is during the coldest part of this period that Leeks are in the greatest demand. This vegetable is not subject to any serious pest or disease and is obtainable at a time when many other vegetables are not in season.

The soil for Leeks should contain plenty of manure; land of a moderately light nature is best for although the Leek delights in plenty of moisture, it will not tolerate stagnant conditions. For early supplies a small sowing may be made under glass, and the seedlings treated in the same manner as Onions raised in warmth. Plant the seedlings in the open when they are large enough to handle and have been suitably hardened.

For ordinary purposes one sowing in the open is usually sufficient. Sow the seeds in a seed-bed from early to mid-March. The plants from this sowing are usually ready for planting towards the end of June or early in July on land which has been properly prepared. There are several methods of growing Leeks, and these depend upon the purpose for which the crop is required. Extra fine stems are obtained by growing the plants in trenches in much the same manner as Celery, with the exception that the trenches need not be more than two-and-a half feet from centre to centre. Plant the seedlings from ten inches to twelve inches apart, and so soon as the plants have grown large enough, place a little soil in the trench and more as the plants develop. Under this treatment it is possible to produce well blanched stems from twelve inches to fifteen inches long. To obtain Leeks for exhibition, even more elaborate methods are employed.

Good Leeks for ordinary purposes may be produced by simply drawing drills with a large hoe, about five inches deep and eighteen inches apart. Place the plants ten inches apart and by frequent hoeing the drills will be gradually filled in; later in the season a little soil may be drawn up to the stems to blanch them. Another method is to plant on the flat, simply making holes with a dibber about six inches deep, dropping a plant in each hole, placing a little soil in to cover the roots, and completing the operation by filling the hole with water. Whichever method is adopted, watering should be done thoroughly in dry weather.

Several distinct types are represented in the different varieties of Leeks; these differ in season, the colour and formation of their leaves and length and thickness of the stem. One of the longest is International Prize, an excellent variety for exhibition and autumn or early winter use. The Lyon is of outstanding merit for ordinary purposes; an improved form of this variety, named Goliath, received the R.H.S. First Class Certificate in a trial at Wisley during the winter of 1922-23. Another fine variety is Royal Favourite, which was raised at Frogmore by the late Mr. Owen Thomas. By reason of their hardiness and long standing qualities the last mentioned, Musselburgh and Prizetaker are admirable varieties for furnishing late supplies. *J. Wilson, Wisley.*

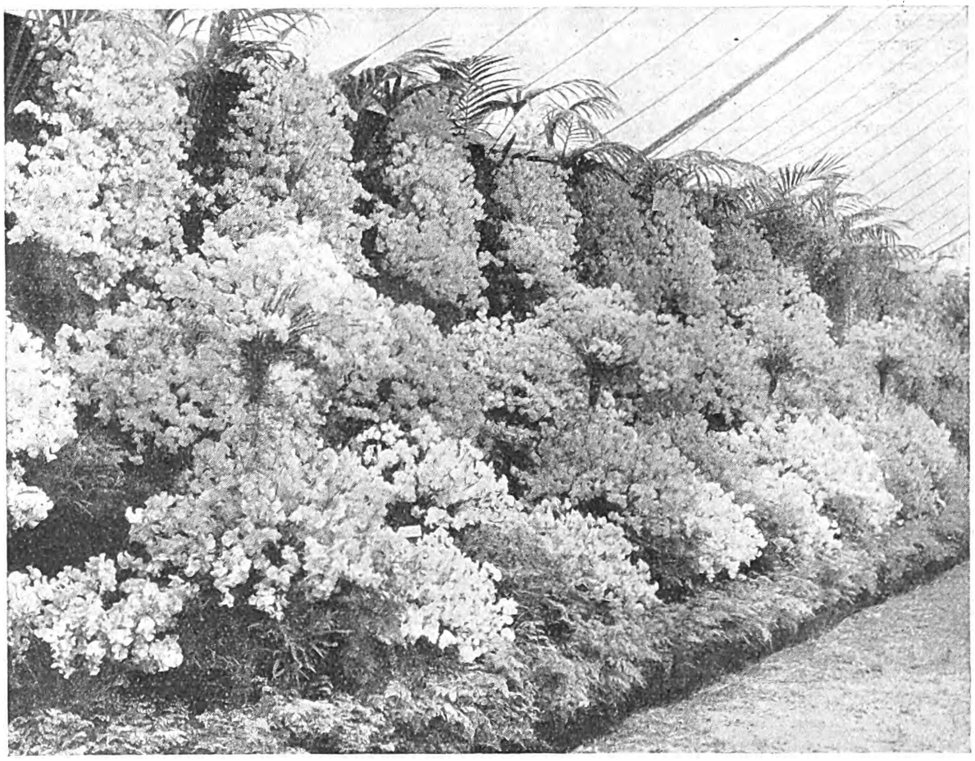


FIG. 213.—MESSRS. DOBBIE AND CO.'S GOLD MEDAL EXHIBIT OF SWEET PEAS AT CHELSEA SHOW.

(see p. 379.)

HOME CORRESPONDENCE.

Dahlia Coronata.—I am anxious to obtain plants of Dahlia coronata, but so far have been unsuccessful in my attempts to find anyone who still grows it. I should be most grateful to hear from any or your readers who know where this plant can be obtained. *W. Lawrence, The John Innes Horticultural Institution, Mostyn Road, Merton, S.W.19.*

Laburnum Adamii.—The recent sharp frosts destroyed all Laburnum blossom throughout our garden. This is shown remarkably on Laburnum Adamii, where branches of pure Cytisus purpureus and of the chimaera—the yellow-purple L. Adamii—are in full flower, but every spray of pure L. vulgare has been cut. *William Lawrence, Burford, Dorking.*

The Codlin Moth.—The small maggot which is found in Apples is the larva of the Codlin Moth, and the damage it does is very considerable throughout the country. When, however, there is a very short crop or total failure, the numbers of the moth must be greatly reduced, having no homes to go to. So far as I have seen this year, there are very few eggs, and it would be of the greatest value if amateur fruit growers would look over their young fruits and gather and burn at once any which show signs of attack. We should thus catch the moth when its numbers are few and reduce very considerably the possibilities of attack next year. The caterpillar enters usually at the eye, and a small hole will be found from which the brown, powdery frass is exuding. These are the affected fruits which should be removed and immediately destroyed. As the thinning of fruits should now be attended to, I send this note to suggest that good work in disease prevention may be accomplished at the same moment. *Edward A. Bunyard.*

A Large Auricula Inflorescence.—Amongst a batch of two-year-old seedling Auriculas one plant has flowered this year for the first time, producing a truss of tremendous proportions to the size of the plant, which only measures three inches across. The colour is violet-blue with a yellow centre. The spike grew to the height of five inches and developed no fewer than seventy-two individual flowers, each measuring on an average three-quarters-of-an inch across, the spike itself being one-and-three-quarter-inch in circumference. I wonder if this is anything like a record for Auriculas. The plants have received no feeding whatever, but were given a good dressing of leaf-mould in February. *F. Glass, Greyhouse Gardens, Murrayfield Road, Edinburgh.*

Watercress.—Other gardeners may, as I once was, be called upon to keep the table supplied all the year round with Watercress, and this I was able to do by adopting similar methods to those described on p. 366, except that I had to start with, and continued to use, cuttings throughout the periods when cutting from plants in the open was not possible. The cuttings were inserted in ordinary seed-boxes placed in a Melon house, and when rooted, hardened. The cut backs kept me supplied with cuttings for future batches. Watercress grown in this way does not have the bitter taste which makes Watercress unpalatable to some. *A. J. Elyar.*

Deterioration of Strawberry Plants.—Your leading article on Strawberries, in the issue for June 11, p. 405, contains two or three simple statements of fact which might usefully be elaborated a little, and followed up by the anxious gardener. In the first place you remark on the necessity on the part of the cultivator, of a knowledge of the habit of growth of the plants he handles. He should also know something of the plant's natural habitat and surroundings. In the case of the Strawberry, its habit of producing new roots above the old is inherited from its woodland ancestors, which are annually half-buried in a layer of decaying leaves that provide an excellent rooting-medium. It seems to follow then, that the correct treatment would be to apply a good mulch in August, largely composed of leaf-soil, and packed well around the crowns. In gardens where the beds can be kept moist, such treatment would prevent the suffering and semi-starvation to which the plants are often subjected at this period, owing to their inability to find moisture and anchorage for their new roots. The critical point in the Strawberry's year is during dry periods in late summer, a time when, in many gardens, it is left to struggle on as best it may, instead of being assisted to prepare for next year's crop. You also hint at the necessity of an annual rest. Recent observations seem to suggest that the cultivated Strawberry tires of its highly civilised existence and desires an occasional complete rest—an opportunity to run wild and undisturbed for a period, to retain its runners and to colonise. During this "rest" the plants appear to recuperate and regain much of their former health and vigour. The healthiest and most vigorous plants I know at the moment were taken, last year, from an old, neglected patch which has been untended for some years, and this is not an isolated case, as I found a similar occurrence last year in the Midlands. I am also watching, in a corner of Surrey, a plot of waste land which was once a garden, but is now overgrown and neglected. Here a patch of Strawberries, apparently untouched for several years, and entangled with herbage of every description, appears to be in perfect health, and the plants are bearing an abundance of flowers and well-formed fruits. The berries, I fear, will not be allowed to mature, but I hope to get stock from this patch later, and shall look forward to the result with confidence. I am not attempting to offer an explanation of this natural tendency to recover, but the fact is obvious, and it would be interesting to know if other readers have made observations in this direction. *C. H. Middleton.*

FOREIGN CORRESPONDENCE.

INTERNATIONAL COMMITTEE FOR HORTICULTURAL CONGRESSES.

In *Die Gartenwelt* (XXXI, April 29, 1927, p. 262), the following is announced.

"France. The Société nationale d'Horticulture de France has sent out invitations for an International Horticultural Congress in Paris. It will be known that the Austrian Horticultural Society on the occasion of its hundredth anniversary, is organising in September, 1927, an International Horticultural Congress, while the International Federation of Professional Horticulturists intends to hold its yearly meeting this year at Geneva. So the *Schweizerische Obst-und Gartenbauzeitung* is quite right in criticising this international competition of horticultural congresses and in recommending the intervention of a committee for international arbitration."

I should like to make a few remarks on this notice:—

Such an arbitration-committee exists in the International Committee for Horticultural Congresses, in which most European governments are officially represented. The competition mentioned above has received the full attention of this International Committee; we can only regret that the organisation of the Paris congresses has been planned without knowledge of our Committee, and hope that in future all societies that intend to convene international gatherings will apply to the International Committee, so as to avoid such coincidences. The Committee will co-operate with the yearly meetings of the Federation of Professional Horticulturists; while these are considering only economic and commercial problems, the congresses (probably every third year) will take up a programme of cultural, scientific and educational questions.

The existence of this International Committee and of the International Federation of Professional Horticulturists makes thus the creation of an International Arbitration Committee unnecessary. *Dr. M. J. Sirks, Hon. Secretary, The International Committee for Horticultural Congresses, Wageningen, Holland.*

PUBLIC PARKS AND GARDENS.

The Ministry of Health has held an inquiry into an application by Barry Urban District Council for sanction to borrow £15,650 for the purchase of Porthkerry Park.

The Golden Valley, Hindhead, a well-known beauty spot, which was given its name of "the Golden Valley" by the late Mr. Grant Allen, and can be seen to full advantage by travellers on the Frensham Road, was lately put up to auction at Guildford and was only saved, it is understood, from being parcelled out for building purposes by the action of a public-spirited Hindhead resident, who bought the property with a view to gaining time for raising a fund by public subscription for the purchase of the land for the nation. The area is about ninety-six acres, and the price paid was £5,650. It is stated that the National Trust has been approached on the matter and requested to issue an appeal for funds.

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

At the meeting held on Thursday, May 5, the members of Committee present were Messrs. J. B. Adamson (in the chair), R. A. Ashworth, A. Burns, A. Coningsby, J. Evans, A. Keeling, J. Lupton, D. McLeod and H. Arthur (Secretary).

AWARDS OF MERIT.

Odontioda Brew-nobia (Zenobia × Brewii); Phaius Cooksonii grandiflora; Odontoglossum Gorizia var. Purple Emperor.—From J. B. Adamson, Esq.

Odontioda Llewelynii (parentage unknown); Odontoglossum crispum var. G. V. Llewelyn; Odontoglossum Doreen var. The Prince.—From G. V. Llewelyn, Esq.

Brasso-Laelio-Cattleya Everest, Beardwood var.; Brasso-Cattleya Enchantress, Beardwood var.—From Col. Sir J. Rutherford, Bart.

Miltonia Lucia var. Fidelio.—From Mrs. Bruce and Miss Wrigley.

AWARD OF APPRECIATION.

Miltonia vexillaria purpurea.—From G. V. Llewelyn, Esq.

A Cultural Certificate was awarded to Mr. J. Howes for Phaius Cooksonii grandiflora.

GROUPS.

Mr. J. B. Adamson staged a group, to which a Gold Medal was awarded, of Odontoglossums in variety, including Odontoglossum Gorizia var. Purple Emperor, Odontoglossum Crispo-Solon var. Rex, Odontoglossum Doreen var. Queen of the Belgians, and Odontoglossum Colossus; Odontioda Brew-nobia, Odontioda Gladys superba, Odontioda Leeana and Odontioda Joan; Coelogyne Mooreana; Oncidium Marshallianum; Broughtonia sanguinea; Miltonia Lena; Masdevallia Houtteana; Cattleya citrina; Cypripediums in variety and others.

G. V. Llewelyn, Esq., Southport, was awarded a Large Silver Medal for a group of Odontoglossums in variety, including O. Doreen var. The Prince, O. crispum var. G. V. Llewelyn, and O. Margarita; Odontiodas Latonia and Llewelynii; Miltonias vexillaria purpurea, bleueana rosea, and Venus var. Princess Maud; Brasso-Cattleyas Ajax and Empress of Russia var. delicata; Cypripediums Lilian Greenwood, Enchantress and others.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), staged a group, to which a Silver Medal was awarded, of Odontiodas in variety, Miltonia Lucia var. Fidelio, M. vexillaria Oswaldii, M. bleueana Pitt's var.; Laelio-Cattleya Dr. R. Shiffman var. Jane, and L.-C. Dr. R. Shiffman var. George, L.-C. Arras var. Erota; Dendrobium Victoria Regina; Sophronitis grandiflora and others.

The Hon. G. E. Vestey, Southport (gr. Mr. B. Collins), was also awarded a Silver Medal for a group of Cymbidiums in great variety.

Messrs. Keeling and Sons, Bradford, staged Odontioda Ceres, Miltonia Lyoth and Cirrhopetalum Collettii.

Mr. John Evans, Colwyn Bay, staged Brasso-Laelio-Cattleya Cowanii var. Evansiae.

At the meeting on Friday, May 20, 1927, the members of Committee present were Messrs. J. B. Adamson (in the chair), R. Ashworth, A. Burns, A. Coningsby, J. Evans, Capt. W. Horridge, A. Keeling, J. Lupton, S. McLeod and H. Arthur (Secretary).

AWARDS OF MERIT.

Odontoglossum Crispum Duke of Wellington, Cypripedium niveum Imperiale, Cattleya Mossiae Leviathan, Cymbidium Ivory Wings (Gottianum × Woodhamsianum), and Miltonia vexillaria Isabella.—From J. B. Adamson, Esq.

Odontoglossum Doris magnifica; Odontoglossum Fabia, Rutherford's var.; Odontioda Queen

Mary, Beardwood var.—From Col. Sir. J. Rutherford, Bart.

Miltonia Warrensis (*Sanderae* × *Hyeana*), and *M. Vespertillia var. splendens.*—From the Hon. G. E. Vestey.

Cypripedium G. V. Llewelyn (*G. D. Nicholas* × *mirum*).—From G. V. Llewelyn, Esq.

Awards of Appreciation.

Laelio-Cattleya Robert Paterson, L.-C. G. S. Ball, Llewelyn's var.; Brasso-Cattleya Maronii, Llewelyn's var.; Odontoglossum promerens, Llewelyn's var. and Brasso-Cattleya Digbyano-Mendelii var. Belissima—From G. V. Llewelyn, Esq.

Odontoglossum crispum xanthotes, Vestey's var.—From the Hon. G. E. Vestey.

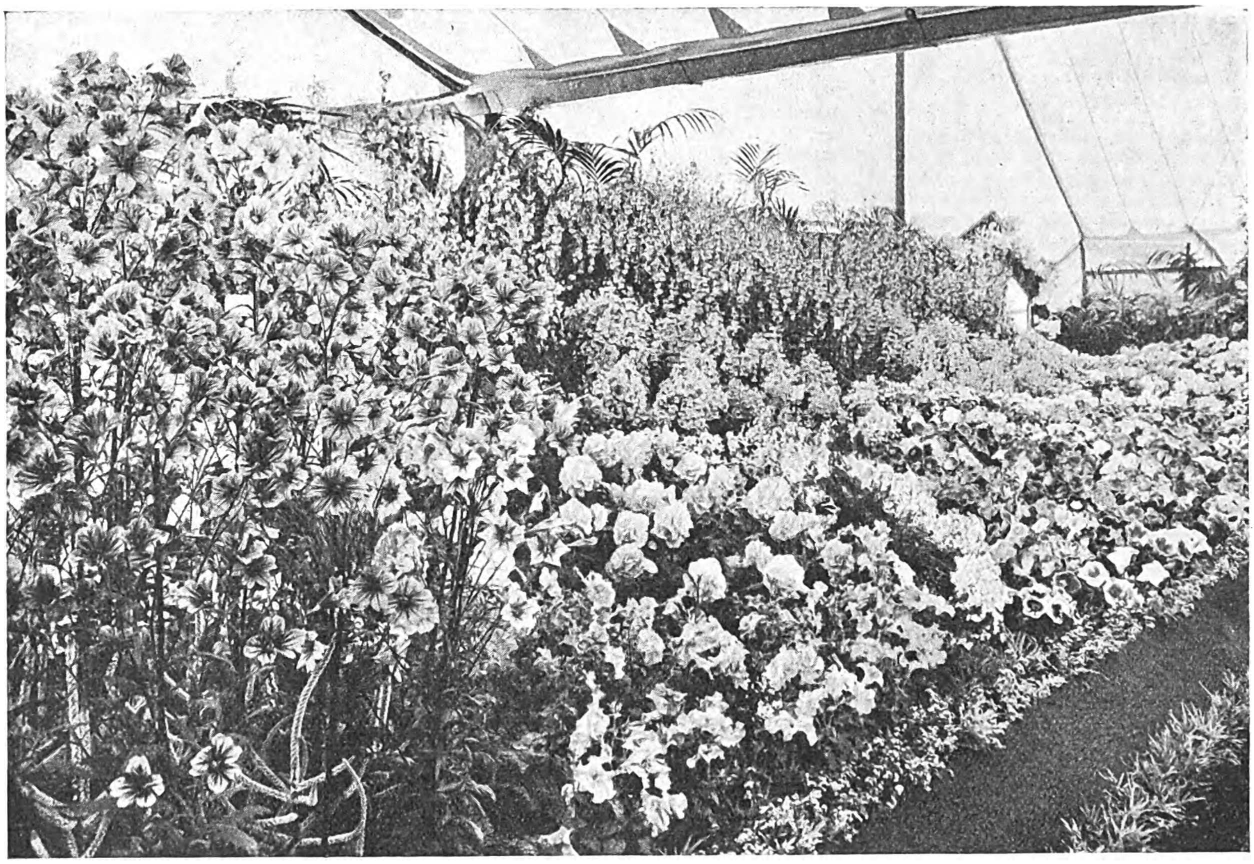


FIG. 214.—MESSRS. J. CARTER AND CO.'S GOLD MEDAL EXHIBIT OF FLOWERING PLANTS AT CHELSEA SHOW.

(see p. 378).

Cultural Certificates.

To Mr. J. Howes, for Odontoglossum crispum var. Duke of Wellington; and to Mr. J. Lupton, for Odontoglossum Fabia Rutherford's variety.

Groups, etc.

J. B. Adamson, Esq., Blackpool (gr. Mr. J. Howes), was awarded a Gold Medal for a group of Odontoglossums in variety, including O. crispum Duke of Wellington, O. eximium Walton Grange var., and O. Pescatorei alba Haddon House var.; Cypripedium niveum Imperiale, C. Annie Measures and C. Albion; Cattleya Mossiae Leviathan; Cymbidium Ivory Wings and others.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), staged a group to which a Silver Gilt Medal was awarded. Odontiodas of the crispum section, O. Wilckeanum and O. Eve var. Adam; Miltonia Reine Elizabeth var. Roi des Belges, M. G. D. Owen, M. Lucia, M. Rosea, M. Hyeana, M. Cobbiana, M. Countess of Strathmore and Dendrobium Victoria Regina.

G. V. Llewelyn, Esq., Southport, was awarded a Silver Medal for a group of Odontoglossums of the crispum section with O. promerens, Llewelyn's var.; Laelio-Cattleya Robert Paterson, L.-C. G. S. Ball, Llewelyn's var., Brasso-Cattleya Digbyano-Mendelii var. Belissima, Cypripedium G. V. Llewelyn and others.

The Hon. G. E. Vestey, Southport (gr. Mr. B. Collins), was also awarded a Silver Medal for a group of Laelio-Cattleyas, with L.-C. Canada, L.-C. Fascinator-Mendelii, L.-C. Caroline and L.-C. Watford; Brasso-Cattleya Springtide, Odontoglossum crispum xanthotes Odontioda Vuylstekeae, Miltonia Warrensis and others.

Col. Sir John Rutherford, Bart., Blackburn (gr. Mr. J. Lupton), staged Odontoglossum Doris magnifica, O. Fabia Rutherford's var., and O. Pescatorei Monica, with Odontioda Queen Mary, Beardwood var.

Messrs. Keeling and Sons, Bradford, staged Odontoglossum illustrissimum, Odontioda Zenobia, Cypripedium Annie Measures, C. Rothschildianum; Laelio-Cattleya G. S. Ball and L.-C. Lycaste cruenta.

GUILDFORD AND DISTRICT GARDENERS'.

By kind permission of Sir Jeremiah Colman, about one-hundred-and-twenty members of this Association paid a visit to Gatton Park on Saturday, June 11. Gatton is famous for its Marble Hall as well as its Orchids, but it was a little too late in the season for the Orchid houses to be seen at their best. The gardens were inspected and the visit was greatly enjoyed. Mr. Collier, the gardener, joined the party at tea, and was asked to convey the thanks of the Association to his employer.

LAW NOTE.

LAKES IN PLEASURE GROUNDS.

A recent case, Horlick v. Scully, referred to in *The Builder* for May 20, raised an interesting point as to the liability of a tenant for maintaining in proper condition ornamental lakes subject to the lease. In 1915, it appears, the plaintiff's predecessor in title had leased to the defendant for a term of thirteen-and-a-half years, a mansion house and grounds, together with the sporting and fishing rights, under covenants which, *inter alia*, required the tenant to keep and leave "all pleasure grounds" "in good and proper order and condition." The pleasure grounds included two ponds and three lakes, the latter occupying an area of about five-and-a-half acres, and it was with them, and with the trout in them, that the main ground of complaint arose. Evidence was given that when the lease was granted, although there was some mud in the lakes, they were in good and proper condition, but that two of them had since become silted up with mud so that there was not sufficient water to keep the fishing in good order and condition. In the first place, the Court held that the expression "all pleasure grounds" in the lease included the lakes, although they were not specifically mentioned. It appears to have been argued for the defendant that the clearing out of the mud would be in the nature of structural repair for which the tenant would not be liable; but the Court did not accept this contention, and held that the plaintiff was entitled to a declaration that under the covenants in the lease it was encumbent upon the defendant to keep and leave all the ornamental waters in good and proper order and condition, then proceeding to consider what was meant by "proper order and condition" in connection with the subject matter of the present case.

As regards the lakes in question, it was held that the words did not mean that the defendant must clean them out entirely, but that she must arrest any injurious element that rendered the lakes out of order, that is to say, mud must be removed in all parts where the presence of the mud reduced the depth of the water to less than two feet six inches. Dealing with the liability of the defendant on a monetary basis, the Court assessed the cost of removing the mud from the lake which was the worst of the three at £300; as regards the second lake, where the obstruction was only partial, the cost was to be estimated by surveyors and added to this sum. Damages were assessed at £20 in respect of the deterioration in the fishing. A claim as to the third lake had been given up by the plaintiff in the course of the trial, and a claim for failing to keep in repair the stone and brick curbing around the lakes was characterised by the Court as a trivial matter, no damages being therefore awarded as to this.

Obituary.

Thomas Richard Hayes.—We greatly regret to learn of the death, on the 12th inst., of Mr. T. R. Hayes, the well-known landscape gardener and designer, whose firm was established about forty years ago at Keswick. Mr. Hayes retired from active business in 1924, but was aged only sixty-three at his death. A portrait of Mr. Hayes, and a short account of some of his many activities, will be found in our issue of October 4, 1924, p. 228.

Conrad Eckert.— We regret to record the death, which occurred on May 13, of Conrad Eckert, head gardener of the Cologne Botanic Garden. Herr Eckert, who was sixty-one years of age, went to Cologne forty years ago from Nürnberg, and was appointed gardener at the Botanic Garden in 1892. His work was in every way exemplary, and he will be greatly missed by his colleagues and friends.

Friedrich Vaupel.—We regret to record the death, on May 4, at the early age of fifty, of Dr. Vaupel, well-known in German horticultural circles as the President of the German Cactus Society, and Curator of the Botanical Museum at Berlin-Dahlem. Professor Vaupel fell asleep in bed while reading an abstruse scientific work, leaving the gas lamp turned on; by some mischance the gas escaped into the room, and Dr. Vaupel was found in the morning dead. The circumstance is all the more tragic, as Dr. Vaupel was looking forward eagerly to receiving the first copies of his recently written work, a *Monograph of Cacti*.

ANSWERS TO CORRESPONDENTS.

Blue-Flowered Hydrangeas.—*A. W.* Whilst it is claimed that iron has the effect of turning the flowers of Hydrangeas a blue colour, it is necessary to use some soluble salt of iron such as sulphate of iron and not pieces of rusty iron, such as you have tried. The sulphate of iron should be mixed with alum in solution, and applied to the roots. Ammonium alum is used by some growers for the purpose. It is applied freely twice a week. There are several proprietary articles on the market, such as Cyanol, which the makers claim will cause the flowers to be of a blue shade. In some districts the blue colour develops naturally, probably because of the nature of the soil, but it is always found that the blue tone is richer in plants growing nearer the coast, and when the flowers are not too fully exposed to the direct rays of the sun.

Early Vinery.—*J. R. M.* You have done well to cultivate the four varieties of Grapes you name satisfactorily in the same house; Black Hamburgh and Madresfield Court are early Grapes, while the two types of Muscats require a longer season, and generally more heat to grow them to perfection. The Vine manure mentioned is all that could be desired; the other is more suited to flowering plants, for when used for vines it results in too much growth at the expense of finish of the berries. Potash manures are of more value and should be substituted for the latter, supplemented with occasional applications of superphosphate of lime. Their use should, however, be governed by the condition of the border.

Flowering Trees for a Garden.—*E. W.* Suitable trees for your purpose include species of Prunus, Pyrus, Crataegus, Amelanchier, Cercis and Laburnum, also varieties of Lilacs. These might include 12, Prunus Persica flore roseo pleno (double-flowered Peach); 9, P. Amygdalus (Almond); 18, P. Hisakura; 6, P. Sargentii; 11, P. Avium flore pleno (double Gean); 14, P. subhirtella, Pyrus Eleyi; 1, P. floribunda var. atrosanguinea; 10, P. purpurea; 7, P. baccata; 20, P. Scheideckeri; 15, P. spectabilis; 19, Crataegus Crus-galli; 2, C. orientalis; 17, C. Carrieri; 4, Amelanchier canadensis; 8, Cercis Siliquastrum; 3, Crataegus Oxycantha flore pleno coccineo (double red Thorn); 16, C. O. flore pleno roseo; 5, Laburnum alpinum; 13, L., Watereri, Lilacs Souvenir de Louis Spaeth, Madame Francisque Morel, Condorcet, Mont Blanc, Charles Joly, and President Grévy. The numbers refer to the order of planting. The trees should be set twenty feet apart with Lilac bushes and other shrubs between.

Lycium barbarum.—*P. E. C.* The correct name of this shrub is Lycium chinense, the Chinese Box Thorn. It is a rapidly growing plant. The rosy-purple flowers are rather small, but are freely produced and develop attractive fruits; the egg-shaped berries, three-quarters-of-an-inch to one inch long, orange-scarlet in colour, make the bushes very ornamental in autumn. The habit of the bush tends to be wide-spreading, the rather slender branches being long and arching, thus a hedge of this plant would be very much wider than one of Privet, and to obtain the full beauty of the fruits it should not be closely clipped. Few shrubs are better for seaside planting than Lycium chinense, for it withstands gales very well, also the salt-laden air of the seaside. For the seaside it is of more value than any of the shrubs you mention, whilst it is very suitable for any part of the country.

Names of Plants.—*E. C. V. G.* 1, Rubus deliciosus; 2, Pyrus intermedia; 3, Diervilla Eva Rathke; 4, Diervilla florida; 5, Elaeagnus multiflorus; 6, Cotoneaster microphylla; 7, Euonymus europaeus; 8, Spiraea bracteata; 9, Arundinaria species (if dwarf, A. humilis); 10, Phyllostachys aurea; 11, Arundinaria japonica; 12, Arundinaria nitida. *X. L.* 1, Berberis vulgaris, 2, Euonymus latifolius; 3, Cytisus Dallimorei. *S. H. S.* (a) Mazus reptans; (b) Lamium maculatum; (c) Saxifraga granulata; (d) Geum rivale; (e) Trientalis europaea. *A. G.* 1, Spiraea Aitchisonii; 2, S. prunifolia var. flore pleno; 3, missing; 4, Rhus vernicifera; 5, Deutzia discolor var. purpurascens; 6, Spiraea var. Houttei; 7, Cornus alba var. Spaethii; 8, Diervilla florida var. *H. W. H.* 1, Crataegus Carrièrei; 2, C. coccinea; 3, Prunus japonica var. flore pleno; 4, send in flower; 5, Euonymus radicans var. variegatus. *G. H.* Primula Juliae, a native of the Caucasus; your plants must have been introduced to the garden or have developed from seeds introduced by some means. *W. F.* Muscari comosum monstrosum. *B. B.* We cannot undertake to name varieties of garden Pyrethrums. Send them to some grower, such as Messrs. Kelway and Son, Langport, who specialise in these plants.—*G. S.* Gloriosa Rothschildiana.—*E. S. C.* Manettia bicolor. —*H. R. S.* The foliage resembles Sparmannia africana, but the specimen is not sufficient for correct determination.—*R. E.* A poor form of Iris sibirica alba.

Origin of "Codlin."—*G. L. B.* The term "Codlin" is usually applied to tallish, conical, early varieties of Apples, such as Keswick Codlin, Manx Codlin, Early Victoria and Lord Derby; as a rule this type of Apple has a large, open core. According to some authorities the word "codlin" is derived from "coddle," which means to soften by boiling, and codlin Apples are those which are fit to stew or "coddle" early in the season.

Phlox Stems Splitting.—*C. R.* The Phlox stems have split and the wounds are becoming covered with callus. Splitting is probably due to resumption of growth in thickness after showers of rain following dry conditions.

Raspberries Failing.—*G. F. G.* The specimens you sent were insufficient to enable us to recognise the cause of the trouble. One or two complete canes should be sent (if necessary, cut into shorter lengths), and also the part of the root-stock from which the affected canes are growing.

Stocks Diseased.—*J. A. D.* The plants are attacked by Downy Mildew, Peronospora parasitica. This fungus is internal, hence sulphuring is not effective. It is possible that the first infection came from resting spores in the soil. If all the seedlings are badly affected it is advisable to destroy them.

Vines Unhealthy.—*J. M.* The vine leaves sent for examination were badly infested by mildew, red spider and thrips, and it is not surprising that the vines give unsatisfactory results. Mildew on vines is most prevalent in spring when growth is made in a fluctuating temperature, and with dryness at the roots and cold draughts. Remedies available include the dusting of flowers of sulphur on the leaves when they are damp, syringing the vines with water containing sulphur, or spraying with a solution of half-an-ounce of potassium sulphide to one gallon of water. Red spider quickly turns the leaves a rusty colour, and a severe attack soon injures the vines. A dry atmosphere and drought at the roots also favours the spread of this pest and similar remedies may be applied, as for mildew. The leaves were covered with little black thrips which increase under the same hot, dry conditions as red spider. In vineries where such plants as Azaleas are wintered, thrips are often troublesome. You cannot hope to save the crop this season, but much may be done by cleansing the vines when the bunches are harvested and also by thoroughly cleansing the house, vines and borders in winter. This treatment, with better cultivation, will do much to restore the vines to a more healthy condition. The Solanum leaves were eaten by a caterpillar.

Vine Leaves Spotted.—*T. R.* Not a disease caused by fungi. The larger yellow-brown areas may be due to scorching. Red spiders were present on lower surface of leaves, and these would account for the general sickly appearance of the foliage.

Wire Enclosures for Fruit Trees.—*E. G. R.* Some growers are of the opinion that wire is detrimental to the growth of fruit trees, but this would only be when the shoots were in contact with the wire, as then damage might be caused during frosty weather. The best plan is to enclose the four sides of the fruit quarter with wire netting and to cover the top when the fruits are ripening with fish netting, supported on strands of wire stretched across from posts. This would permit of throwing the whole of the top open when the fruits have been gathered to admit the sun and air to ripen the growths, and permit birds to enter and devour harmful insects that might be present. The permanent exclusion of birds from fruit plantations is a distinct disadvantage.

Communications Received—C. W. M.—R. S.—W. L. —J. A. K.—R. S.—O. P. A.—G. C.—A. W. P.—E. T. E. —D. L.—G. C. J.—J. D. C.

THE
Gardeners' Chronicle

No. 2113.—*SATURDAY, JUNE* 25, 1927.

CONTENTS.

Alpine garden—
  Saponaria caespitosa 445
  Silene Hookeri ... 445
Cherries from France, prohibition of imports of 443
Dahlias at Southport 443
Echium callithyrsum 444
Economic botanist's visit to the West Indies 444
Edinburgh, notes from 449
Flower garden—
  Phormium tenax ... 447
Fruit garden—
  A fine Morello Cherry tree 451
  Black Currants ... 451
Fruit, gas storage of... 443
Fruit register—
  Some good Melons... 451
"Gardeners' Chronicle" seventy - five years ago 444
Geneva, International Horticultural Conference at ... 443
Gladiolus 452
Gladiolus primulinus hybrids, the early history of ... 452
Hardy flower border—
  Garden Lupins ... 445
Ideal gardens and plant lore 448
Indoor plants—
  Richardia Elliottiana 445
Jones-Bateman Cup ... 443
Lime and soot in the garden 450
National Memorial to Queen Alexandra garden scheme ... 443
Obituary—
  Ash, Job 454
  Main, Thomas ... 454
  Moore, G. F. ... 454
  Ward, James ... 454
Potato sales in Ayrshire 444
Raspberry stem-bud moth 452
Schizanthus, the pollenation of 452
Societies—
  Leicestershire Agricultural 454
  Royal Horticultural 452
  United Horticultural Benefit&Provident 454
Trees and shrubs—
  Cercis racemosa ... 447
  Rhododendron sphaeranthum ... 447
  The Robinias ... 447
Trenching, deep ... 451
Vegetable garden—
  Maincrop and late Carrots 450
  Prolonging the Celery season ... 450
Vitaglass, growth of plants under ... 452
Week's work, the ... 446
Wells, Mr. Thomas ... 444
Wilson, Mr. J. ... 444
Window garden competition in Vienna... 444
Wisley, notes from ... 448

ILLUSTRATIONS.

Cercis racemosa 447
Cherry tree at Skelton Castle, a large 451
Echium callithyrsum 445
Meconopsis Baileyi flowering at Wisley... 449
Wells, Mr. Thomas, portrait of... 444

SUPPLEMENT PLATE.
Rhododendron sphaeranthum.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 61·6°.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London. Wednesday, June 22, 10 a.m. Bar. 30·1. Temp. 65°. Weather, Fine.

Gas Storage of Fruit.

THE Food Storage Board of the Department of Scientific and Industrial Research has issued a specially valuable *Report.** It is one which deserves to be studied as attentively by home growers of fruits as it will be by growers overseas who look to our markets for the disposal of their produce. As the *Report* states, chilling as a means of preventing the perishing of fruits has probably reached its limit of application, for it permits of the transport of fruits and vegetables only within a limited radius. For this reason other methods of extending the storage life of fruits and vegetables are being investigated. Where the conservation of the intact fruits is not necessary, the freezing method is probably the most economical, for although, of course, frozen fruit when thawed is reduced more or less to pulp, the quality is not impaired. Hence the jam maker and the confectioner find in this method a useful means of preserving otherwise perishable material. But if the living state of fruit is to be preserved, other means must be employed. For this reason the Research Staff of the Food Board has devoted its attention to the study of the behaviour of fruits under various conditions of gas storage. The scientific considerations which encourage the belief that storage might be effected in this way are very simple. Oxygen is essential to the life of plants. Carbon dioxide in small doses stimulates vital activity; in larger doses depresses it, and in yet larger amounts acts as a poison. Living fruits, like the other parts of plants, use oxygen and evolve carbon dioxide, and hence in a sealed vessel containing living fruit oxygen disappears and is replaced by carbon dioxide—the increase of carbon dioxide being approximately equal to the decrease of oxygen. Ventilation, that is, the introduction of fresh air, provides a means of regulating the composition. The ventilation may be of the ordinary kind, that is, the admission of fresh air with its twenty-one per cent. of oxygen, and its low, 0·04, per cent. of carbon dioxide; or it may be "negative," that is, carbon dioxide may be introduced. Thus it is possible to maintain an approximately constant atmosphere in the container in which fruit is stored. In the early experiments carried out in 1918 and subsequent years it was shown that ripening may be retarded without ill-effects to the fruits by reducing the amount of oxygen in the air, and it was found that an increase of carbon dioxide also retards ripening. As an example of the results obtained, the case of Apple Stirling Castle may be cited. This Apple turns yellow after twenty-eight days in air, but is still green after 114 days in an atmosphere containing 5-10 per cent. of oxygen and 10-15 per cent. of carbon dioxide. The artificial gas storage also delays the softening of the fruits and the formation of sugar in them. Large scale experiments confirmed the results of laboratory tests. A gas store was constructed at Histon on the property of Mr. John Chivers, who has taken the keenest interests in these experiments, and the experiments included the testing of the gas storage system against various other well-known methods of storage. The experiments revealed both the potential merits of gas storage and serious difficulties of its application—the chief of which lay in the fact that it is technically a very difficult matter to prevent a large cement container from exhibiting air leaks. When this difficulty was overcome it was shown that by the gas storage method the life of Apples (Bramley's Seedling) was more than double that under ordinary conditions of storage. Another difficulty which has to be overcome consists in preventing change of temperature by the self-heating of the fruits. In the course of experiments on this subject it was found that gas storage with 10 per cent. of carbon dioxide is most effective at temperatures at about 50°F. Humidity also should be controlled, but in practice this is by no means easy. The experiments, which are to be continued, are manifestly fraught with great possibilities not only for the foreign grower but also for the home producer. That they will lead to important developments in the practice of fruit storage is certain, and therefore the results of the further experiments will be awaited with interest by all those concerned with the growing or marketing of fruits.

International Horticultural Conference at Geneva.—About one hundred delegates attended at the Conference of the Fédération Horticole Professionelle Internationale at Geneva on Monday, June 20, when M. Rochaix, President of Agriculture for the Canton of Geneva, opened the proceedings with a speech of welcome on behalf of the Swiss Government and the city of Geneva. M. J. Vachoux, President of the Association of Swiss Horticulturists, who presided over the Conference, also offered a welcome to the foreign delegates. The Conference commenced at 8.30 a.m., an hour considered early by the British delegates who, however, turned up well to time, those representing the old country being Messrs. H. T. Mason, President of the British Florists' Federation; Mr. E. Laxton, past President of the Horticultural Trades' Association; Mr. C. Du Cann, Mr. C. Engelmann, Mr. W. E. Wallace, Mr. C. H. Curtis, Mr. J. Godber, Mr. Rich, Mr. J. S. Brunton and Mr. G. D. Clark, the last-named acting as interpreter for the British delegation. Mrs. Wallace, Mrs. Laxton and Mrs. Curtis were also present at the opening proceedings. By twelve o'clock a very considerable part of the programme was finished, when an adjournment was made for lunch, given by the State Council of the Canton of Geneva, in the beautiful park des Eaux-Vives—recently presented to the city—overlooking the Lake of Geneva. The Conference was continued at 4 o'clock, after several minor Committees had met, and the accounts for the past year had been audited. The chief business of the morning was the consideration of the minutes of the previous Conference, the consideration of international charges for the transport of horticultural goods, the question of protection under the guise of prohibition for the purpose of excluding pests, the condition of horticulture in the countries represented at the Conference, and the subject of co-ordinating pathological services. A report of the proceedings will appear in our next issue.

The Jones-Bateman Cup.—In 1920, Miss L. Jones-Bateman, of Cae Glass, Abergele, presented to the Royal Horticultural Society a valuable Silver-gilt replica of the Warwick Vase, to be used for the encouragement of fruit production. It is offered triennially for researches in the growing of hardy fruits, Figs, Grapes and Peaches in the open or under glass, and is available for award in 1927. Candidates should submit accounts of their work by October 31. The work dealt with must have been carried out by the candidate in the United Kingdom, mainly during the past five years. The Cup will be held for three years by the successful candidate, who must give a bond for its safe return, and when the Cup is relinquished the holder will receive a commemorative gold medal. The holder will be eligible to compete on the next or any succeeding occasion. The assessors will be three, two appointed by the Royal Horticultural Society and one by the National Farmers' Union, and they will report to the Council of the Royal Horticultural Society upon the originality and comparative potential value to the fruit-growing industry of the work of the candidates. The Council of the Royal Horticultural Society will award or withhold the Cup at its discretion.

The National Memorial to Queen Alexandra (Garden Scheme.)—Major A. Dorrien-Smith, of Tresco Abbey, Isles of Scilly, in addition to opening his gardens to the public from July 25 to August 6 on behalf of the Queen Alexandra Memorial Fund, has kindly agreed to allow visitors to enter from July 10 to 20, when Metrosideros tomentosa, named "Pohantakawa" by the Maoris, will be in flower. There are frequent trains from Paddington to Penzance, and an excellent steamship service from there to the Scilly Isles. Further particulars may be had from the National Memorial to Queen Alexandra, 28, Windsor House, Victoria Street, S.W.1.

Prohibition of Imports of Cherries from France.—In view of the discovery of consignments of French Cherries heavily infested with the larvae of the Cherry Fruit Fly, the Ministry of Agriculture has made an Order prohibiting the landing in England and Wales of raw Cherries grown in France. The Order came into force on the 24th inst., and operates for the remainder of the season.

Dahlias at Southport.—The Flower Show Committee and the Parks Committee of the Southport Corporation have arranged, in conjunction with the National Dahlia Society, for the growing in a border in the South Marine Park adjoining Southport Promenade, of a representative collection of the best varieties of Dahlias in the various sections. The following types of the flower will be represented: Cactus, large Paeony, large Decorative, small Paeony or Charm, small Decorative, Collerette, Pompon, Star, Show or Fancy, Single and Mignon; in all there will be about 730 plants. For the purpose of comparison, plants of several species of Dahlia will be included, these having been kindly sent by Mr. T. Hay, Superintendent of Hyde Park, London, at the request of the National Dahlia Society; the other plants are being supplied by firms who specialise in the Dahlia. This special border of Dahlias is intended to be of an educational character, and as the different sections of the plants will be labelled, it is anticipated that the public will derive much practical knowledge of the habit and growth of the different varieties by inspecting the plants when they are in bloom. It is expected that most of the Dahlias will be in flower during the period of the Southport Flower Show on August 24, 25 and 26. The border is nearly opposite Scarisbrick Avenue, and situate near to the Bowls House, facing the Promenade.

---

*Food Investigation. Special Report No. 30. "Gas Storage of Fruit." Department of Science and Industrial Research, H.M. Stationery Office, 1927, price 1s. 9d. net.

The National Sweet Pea Society.—We would remind our readers that entries for the annual show of this Society, which is to be held at the R.H.S. Hall, Westminster, on July 7 and 8, next, must reach the Secretary, 19, Bedford Chambers, Covent Garden, W.C.2, not later than June 29.

Linnean Society's Awards.—At the anniversary meeting of the Linnean Society, the President Dr. A. B. Rendle, presented the Crisp Award and Medal to Prof. H. Graham Cannon, of Sheffield University, and the Linnean Gold Medal to Dr. Otto Stapf, formerly Keeper of the Herbarium, Royal Botanic Gardens, Kew. At the same meeting, Sir Sidney Frederic Harmer, K.B.E., F.R.S., was appointed President; Mr. H. W. Monckton, Treasurer; Dr. W. T. Calman, Zoological Secretary, and Mr. John Ramsbottom, Botanical Secretary.

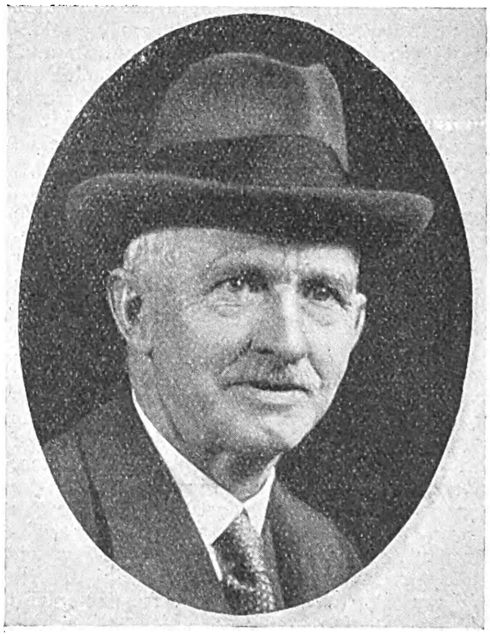
Ayrshire Potato Sales.—The first of the series of auction sales of early Potato crops in the Girvan and Maybole districts of South Ayrshire began on Tuesday, the 14th inst., and were continued during the remainder of the week. In consequence of the late frosts experienced in May and the dry weather of June, the crops are in a backward condition, and as the quality and weight of the tubers varied, prices fluctuated to a wider extent than is usual. On a few farms a number of lots were withdrawn from sale as the result of the frost, but there was spirited competition for the choice lots which had escaped injury. The high price of £64 per acre was realised for a small crop of nine acres on the farm of Burnside, but the individual farm average ranged from £28 to £55 per acre. One transaction was recorded at £20 per acre, a low figure that has not been equalled since pre-war days. Epicure is the variety exclusively grown and digging operations have already commenced.

Sale of Stamperland Estate.—Mr. Robert Paterson, who has purchased a residence in Sussex, has sold his estate near Clarkston in Renfrewshire, together with the range of glasshouses in which the Stamperland collection of Orchids was accommodated, to Mr. James Wright, builder, Glasgow, who purposes developing the land extending to 110 acres on the lines of a garden city.

Mr. J. Wilson.—The many friends of Mr. J. Wilson, Superintendent of the Fruit and Vegetable Department, Wisley, will be interested to know that he has been appointed gardener to Sir Philip Sassoon, Trent Park, New Barnet, and is taking up his new duties early in July. Mr. Wilson has been at Wisley for the past sixteen years and has been successively journeyman, propagator and superintendent of the Fruit and Vegetable Department.

Window Garden Competition in Vienna.—The Municipality of Vienna is organising a competition, in which valuable money prizes are to be offered for the best window balcony, business premises, and dwelling house decoration. Information is given freely by the municipal authorities as to the best flowers and plants to use for this kind of planting, and the competition should have a very valuable educative effect.

Mr. Thomas Wells.—The popular Park Superintendent of Barnsley, Yorkshire, is a Lancashire man who commenced his career in the gardens of W. F. Fitzherbert Brookholes, Esq., Claughton Hall, Garstang. He proceeded into Messrs. Dickson's nurseries, Chester, and after serving there for a period he went as journeyman at The Pastures, Derby, and subsequently became foreman at Burwarton Hall, Shropshire. Later, he went to Trentham Hall and served for two years under Mr. Peter Blair, leaving Trentham to take charge of the gardens at Barlaston Hall, Staffordshire. He occupied similar positions at Highfield Hall, Leek and at Wooley Park, Wakefield, where he remained for sixteen years. In 1917, Mr. Wells was appointed Superintendent of the Public Parks at Barnsley, and since entering upon municipal work he has made Locke Park, Barnsley, one of the most noted places in south Yorkshire. Although situated in the midst of the coal mining industry, Mr. Wells has been able to produce floral displays, both outside and under glass, which would do credit to anyone placed under much more favourable climatic conditions. Locke Park possesses a good up-to-date range of glass, including large show houses, and during the year Mr. Wells provides a fine rotation of displays, the chief of which are Cinerarias, Calceolarias, Hippeastrums, Schizanthuses and Chrysanthemums. The summer glory of this park is what is known as the "Quarry Gardens;" constructed from a disused quarry it has been converted into a paradise of flowers, and with the slopes on both sides planted with trees and shrubs, with a winding path through the centre, a broad stretch of grass set with beds, and a broad border on both sides running the whole length of the valley, it lends itself to the making of a fine flower garden which is at its best during August and September. Mr. Wells finds that the plants which give the best results for bedding in the midst of the colliery districts such as Barnsley, are Dahlias, Antirrhinums, Pelargoniums, Heliotropes, Fuchsias, Centaureas, Calceolarias and Begonias. Last year, Mr. Wells introduced—as a new feature in Barnsley—carpet bedding into some of the small beds, using various varieties of Alternanthera, Arenarias, Echeverias, etc., while at the entrances to the park, where there is a long, narrow border at the base of a Laurel bank, the admonition to "Enjoy the Beauties of Nature," was worked out in carpet bedding. The Barnsley Corporation caters on a large scale for sports, and the bowling greens and tennis courts are some of the finest in the country. Mr. Wells is very popular both with the people of Barnsley and the gardeners of the district.



MR. THOMAS WELLS.

A New International Dictionary of Agriculture.—Further progress has, we understand, been made with the preparation of the *International Agricultural Dictionary* mentioned by us in our issue of October 3, 925 (p. 261), which is being published by the International Institute of Agriculture in Rome. We have received a specimen of the first fascicle of sixteen pages, which runs from Abaca to Accaparement (the alphabetical classification being in French). The explanatory text is in French and English, the words classified being also translated into twenty-three other languages in so far as the equivalents exist. The general principle on which the scheme of the *Dictionary* is based is that of the collection of the most important terms used by technicians and specialists in agriculture, agricultural industries, and allied sciences. The work is to be published in monthly parts consisting of thirty-two large octavo pages in double columns, with a cover, the whole to be completed in about ninety parts; in addition, there will be an index of the words in all the languages used.

Economic Botanist's Visit to the West Indies.—We learn that Mr. H. C. Sampson, who was recently appointed Economic Botanist at the Royal Botanic Gardens, Kew, left this country on the 11th inst. for British Guiana at the invitation of the Governor and under the auspices of the Colonial Office and the Empire Marketing Board, to study and report on various agricultural matters in the colony. He will also visit Trinidad and the Imperial College of Tropical Agriculture, and Barbados.

Echium callithyrsum.—The magnificent plant of Echium callithyrsum illustrated in Fig. 215, is growing in the gardens of Mr. A. F. Calvert, at Coverack, Cornwall, who kindly forwarded us the photograph. Mr. Calvert informs us that the plant developed this season 320 of the large, cobalt-blue inflorescences, and that it measures twenty-one feet across and six feet in height. The species is a native of the Canary Islands, and requires a mild climate, such as that of Cornwall or the Scilly Isles, from which latter place the cutting was obtained originally by Mr. Calvert. E. callithyrsum is sometimes known in gardens as E. arboreum, and is the largest and handsomest of all the giant Buglosses which are found in the Canary Islands. The flower spikes measure about a foot in length, and are about three inches wide.

Appointments for the Ensuing Week.—Monday, June 27: Romsey and District Gardeners' Association's outing. Tuesday, June 28: Royal Horticultural Society's Amateur show. Wednesday, June 29: Royal Norfolk Agricultural Association's show (two days); Yorkshire Flower Show and Gala (three days); Littlehampton Horticultural Society's show. Thursday, June 30: Newport (Mon.) Horticultural Society's Rose Show in aid of the Royal Gwent Hospital; Paisley Florists' Society's meeting. Friday, July 1: National Rose Society's show (two days); Accrington and District Chrysanthemum Society's meeting. Saturday, July 2: Blackburn and District Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Watering with Gutta Percha Tubing.*—Farmers, gardeners, florists, and all who have a garden, will save a deal of trouble in watering and manuring gardens or land by using Gutta Percha tubing. Testimonials to its efficiency economy, durability and convenience, are being constantly received. Half-inch bore tubing, for gardening, 3d. light, 3½d. medium, and 4d. per foot stout, which is the best and more flexible. Copper branch, stopcocks, and rose complete, 4s. 6d., 5s. 6d., 6s. 6d. and 10s. 6d. each. Brass or Gutta Percha unions and unions and stopcocks, to attach to cisterns or butts, all sizes. Price list sent on application to James Sheath and Company, at the Patent Gutta Percha and India Rubber Warehouse, 35, Old Street Road, London. *Advertisement in Gard. Chron., June 26, 1852.*

INDOOR PLANTS.

RICHARDIA ELLIOTTIANA.

The golden Arum is one of the very best plants for furnishing the stages in the greenhouse or conservatory during the early summer. The flowers remain in good condition for a fortnight or more, and also last exceedingly well when cut and placed in water.

The spathe is rich yellow in colour, fading with age to a greenish tint; the leaves are similar in shape and size to those of the more common Richardia africana (syn. R. aethiopica), but are marked with a few white or translucent spots, while the leaf petioles are also more or less blotched.

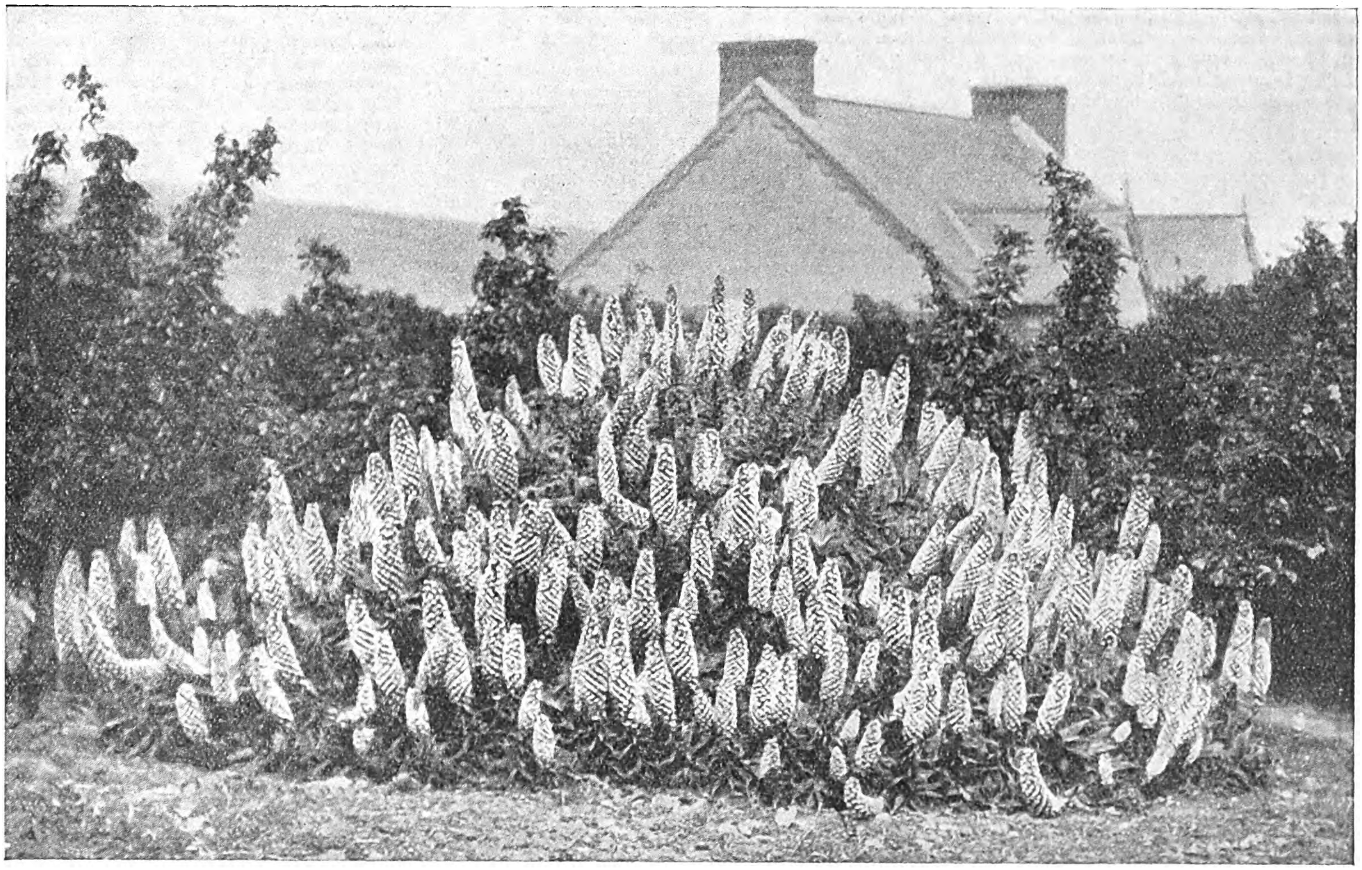


FIG. 215.—ECHIUM CALLITHYRSUM. (see p. 444.)

The tuber is somewhat similar in appearance to that of a Caladium, and is very floriferous.

Unlike the white-flowered Richardias the growth of R. Elliottiana is deciduous, and after a period of rest, the corms should be potted early in February, using a rich, fibrous compost containing a little dried cow-manure. The pots should be just sufficiently large to accommodate the corm, which should be started in a house having an intermediate temperature. Great care must be exercised in watering at this period, but when the pots are filled with roots liberal supplies of moisture will be necessary.

The plant is a strong grower and a gross feeder, therefore generous treatment is necessary to obtain good specimens. When well cultivated a second crop of flowers is obtained. Shift the plants into larger pots as they require more root room and feed the roots occasionally with weak liquid manure made from sheep dung. During its period of growth, R. Elliottiana requires a higher temperature than R. africana, and a humid atmosphere.

During the summer the plants may be grown in a cold house or cold frame. From the beginning of October the supply of moisture supplied to the roots should be reduced, and during the winter only just sufficient to keep the soil from becoming dust-dry is necessary. *T. H. Everett.*

HARDY FLOWER BORDER.

GARDEN LUPINS.

The value of the modern Lupin as a border plant is generally recognised, and it occupies an important position amongst early summer flowering plants in most gardens. It is, however, when planted on a large scale, that really imposing floral spectacles are produced, and the Polyphyllus hybrids are essentially adapted to this purpose.

The ease of propagation, quickness of growth and abundance of flowers make this plant an invaluable subject for the production of quick effects where a large area is in course of development. The Lupin adapts itself readily to almost any soil, and is particularly valuable on comparatively poor soils, where the plants may even be used to improve the ground for future planting. They are surprisingly free from the attacks of pests and diseases, and even when the main spike of flowers has passed, the lateral spikes continue to give colour and considerably lengthen the flowering period.

Whereas the range of colour in the old-time Lupins was almost confined to shades of blue and white, that of the more recent introductions has very much widened and includes every shade of pink from the most delicate flesh to the deepest rose, yellows from the palest cream to deep apricot, a number of lavenders, mauves and purples, and many attractive combinations of these colours. The newer varieties retain all the good qualities of the older ones, and thus offer exceptionally fine material for the creation of massive colour effects of great diversity. *A. P. C.*

ALPINE GARDEN.

SAPONARIA CAESPITOSA.

This is an attractive little alpine from the Pyrenees, where it is to be found on limestone rocks forming close mats of sharply pointed, linear leaves which are glabrous and of a rich green colour. Above the foliage arise red-tinted stems three or more inches high bearing one or two pairs of leaves and terminated by clusters of from three to six short pedicelled blooms rising from clusters of small, tooth-like bracts.

The flowers are about half-an-inch in diameter; the corolla is of a rich rose-pink, while the calyces are tinted with red and covered with soft, silky down.

The plant flowers freely during June and July; it should be planted in a sunny position in the moraine or a cliff crevice. *A. G. F.*

SILENE HOOKERI.

This lovely species, one of the gems of the race, is a native of Oregon and California, and though introduced to this country so long ago as 1873, is still only to be obtained as a rare novelty.

Of loose, spreading habit, it produces a quantity of trailing, angular growths about nine inches in length, arising from a stout, central tap-root. These growths are sparsely furnished with oppositely disposed, narrowly elliptic leaves which taper into long, slender pedicels; they have entire margins and are clothed on both surfaces with silky down. Because of the downy character of the plant it is advisable to protect it from excessive overhead moisture in winter by means of a sheet of glass.

The flowers in most instances are produced singly and plentifully, if the plant is happily situated, during late June and July. They are two inches or more across, the large, soft, pink petals being deeply divided into four narrow lobes, which, combined with the white, tooth-likes tructures at the base of the blade, impart to the flowers a dainty, feathered appearance.

This Silene is worthy of a choice position in the rock garden, where it should be planted in full sunshine and in deep, light soil. Damp in winter seems to be chiefly responsible for its failure, which misfortune should be guarded against by raising fresh stock from seeds, which are sometimes produced abundantly. *A. G. F., Wisley.*

The Week's Work.

THE ORCHID HOUSES.

By J. T. BARKER, Orchid Grower to LADY LEON, Bletchley Park, Bletchley, Bucks.

Odontoglossum citrosmum.—This Orchid also requires attention so soon as the flower-scapes are removed. The latter are produced simultaneously with the new pseudo-bulbs, in perfectly pendulous racemes, hence the desirability of growing the plants in pans or baskets, which can be suspended from the roof rafters. When the plants are well-rooted and in full growth, an abundant supply of moisture should be given to the roots. So soon as growth is completed, this Orchid needs a long rest, by keeping it dry and exposing it to as much light as possible to ensure the ripening and consolidating of the newly-made growths.

Cattleya Lueddemanniana (speciosissima).—This Orchid and its numerous varieties,both white and coloured, delight in the temperature of the warm Cattleya house. Many have some difficulty in flowering the plant,through,in some cases, growing it in too cool conditions, too far from the light, and disturbing it at the roots at the wrong season. To keep Cattleyas and their allies in good health they should have new rooting material whenever they require it; the compost should be of a clean, porous nature. The drainage material should be ample to allow water to pass away readily. A sweet, humid atmosphere should be maintained whilst the plants are making their growth, and a drier atmosphere whilst they are at rest, but not excessively dry even at that season.

THE KITCHEN GARDEN.

By R. H. CROOKFORD, Gardener to THE RT. HON. LORD WAVERTREE, Horsley Hall, Gresford, N. Wales.

Runner and Dwarf Beans.—Further sowings of both Runner and Dwarf Beans may be made, and the plants treated as advised in a previous calendar. If the soil is very dry, it should be well watered before sowing the seeds; the latter may be soaked for a very short time to hasten their germination. If not already done, place supports to those sown or planted earlier.

Cucumbers.—Where these are cropping, either in houses or frames, care should be taken to train the shoots, so that crowding the growths is prevented. Keep the laterals pinched at the joint beyond the fruit. Remove all badly-shaped and misplaced fruits, also a few others, if the crop is in excess. Cucumbers at this stage require an abundance of moisture at the roots, and manurial assistance should be afforded them about twice weekly. Top-dress the roots when required with a rich compost consisting of good loam and horse droppings, with a little bone-meal and soot added. Use the syringe freely, or red spider will spread quickly. Should thrips be troublesome, vaporise the house so soon as they are detected.

HARDY FRUIT GARDEN.

By H. MARKHAM, Gardener to the EARL OF STRAFFORD, Wrotham Park, Barnet, Middlesex.

Orchards.—Trees bearing good crops will be benefited by a liberal soaking at the roots with liquid manure, and especially if they are growing in grass land; keep the grass very short for several feet around each tree, as there is nothing more harmful to the welfare of orchard trees than letting the grass grow to be turned into hay. This I have repeatedly observed; on the contrary, where the grass had been kept very short by sheep grazing it and the roots of the trees well manured, vigour was maintained and the fruits grew to a good size and developed high colour and quality. I. American blight is present on the trees dress the latter frequently with strong paraffin emulsion or Katakilla. The former specific should be applied to the affected parts with a brush; the other syringed thoroughly on all parts, according to directions issued by the makers.

Raspberries.—If not done already, remove all young canes that are not required for fruiting next year or for increase of stock. Thin the canes to an average distance of about eight inches apart, according to the health and strength of the growths, and secure them to the wires as they advance in size. There is a good prospect for a satisfactory crop of berries, but the roots need a thorough soaking of water to favour the swelling of the fruits and to strengthen the young canes. Both mulching the rows with manure and thoroughly soaking the roots with liquid stimulants will prove very beneficial to the crop and should not be neglected in dry weather.

FRUITS UNDER GLASS.

By F. JORDAN, Gardener to COLONEL SPENDER CLAY, M.P., Ford Manor, Lingfield, Surrey.

Figs.—The fruits of the second crop on early forced Fig trees are swelling, and the crop should be thinned, retaining the most forward fruits that will ripen quickly. This end is best secured by rubbing off most of the small fruits as they develop, except those late enough to pass through the winter and furnish the first crop next year. Very early trees may be induced to ripen a third crop, but the fruits will be small, and owing to the length of time they would take to ripen the trees would have no time for rest. Assuming that the roots were kept slightly drier when the first Figs were ripening, the roots should now be fed liberally with warm, diluted liquid manure, in addition to rich top-dressings. The trees should be syringed liberally, and if red spider has attacked the trees, now is the time to eradicate the pest by maintaining a thoroughly moist atmosphere, which is no difficult matter, as sun heat will now permit of closing the house early with a temperature ranging 80° to 90°.

Red Spider on Vines.—Nothing prevents Grapes from colouring perfectly more than an infestation of red spider on the foliage. No matter how perfect the condition of the Vines may be, if red spider spreads on the leaves before the berries commence to colour, the finish of the berries will be impaired, and means should be taken at once to eradicate the pest. Muscat of Alexandria and Black Hamburgh Grapes are, perhaps, more susceptible to this pest than other varieties owing to the fact that they need more fire-heat. Syringing or sponging the leaves at this stage is a most difficult operation without spoiling the appearance of the bunches. This pest generally starts first in dry corners of the vinery, and one of the best of all remedies is to dust the affected leaves with dry sulphur on its first appearance. By using a distributor the foliage may be covered with the sulphur quickly without disfiguring the bunches.

PLANTS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Stephanotis floribunda.—This beautiful stove or intermediate house climber will probably have passed its first blooming stage, and will be making a considerable amount of growth. The work of thinning and regulating the growths should be given early attention. The Stephanotis is generally trained on wires near the roof-glass of a stove, although two crops of flowers may be obtained from plants growing in an intermediate house by timely attention given to the thinning of the shoots. This climbing plant enjoys plenty of atmospheric moisture during the growing season, and where the roots are growing under restricted conditions (which I prefer) the plants will require liberal supplies of manure water. This climber may be easily propagated from cuttings by taking off young shoots with a heel and inserting them in a sandy compost in a moist propagating frame. A suitable compost for this plant consists of good fibrous loam and peat with broken charcoal and coarse sand added to ensure free drainage.

THE FLOWER GARDEN.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Roses.—Varieties of Roses which succeed on their own roots may be successfully propagated indoors at this time. Shoots that have finished flowering are suitable for use as cuttings, and they are best taken off with a heel, selecting medium-sized growths with firm wood for the purpose. The cuttings should be about four inches long. They may be inserted in pots of sandy soil, and stood in a close propagating case in specially prepared beds in a propagating house, or they may be dibbled in beds made over a mild hot-bed of manure and leaves in cold frames. Although most varieties of garden Roses may be rooted from cuttings, not all of them will grow successfully. This, I find, is determined entirely by the class of roots they make; some varieties, although they root readily, make a mass of fine, fibrous roots, and such sorts should be discarded at once, for they never grow freely. On the other hand, varieties that make strong, woody roots grow freely and produce strong, woody shoots. Roses and all hardy shrubs may be propagated successfully indoors from young, soft shoots, if stock plants can be kept indoors. By this method certain sorts that are normally difficult to root out-of-doors may be easily propagated.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Shrub Garden.—This month is, perhaps, the best in all the year in which to make notes of plants that are doing well, but which may require more room to develop properly, and as many of them are at their best, to select places where they may be set later, so that their effectiveness may be enhanced. These notes will be found very useful when planting time arrives, as by then even the best of memories might be faulty. To name a selection of those in flower at present would be outside the scope of these notes, but never before has there been such a display on many of our half-hardy shrubs, and to see large plants of Tricuspidaria lanceolata with their blood-red, waxy flowers in the greatest profusion, alongside Olearia macrodonta when smothered in its white cloud of Daisy-like flowers, makes one realise that much remains to be done in placing our plants so that the best effects may be obtained. Calceolaria violacea has been most floriferous this season, vying with Veronica Hulkeana in pale lavender shades, while that gem of the Olearias, O. semi-dentata, strikes a deeper note in purple, its large, single flowers on their six-inch foot-stalks being the admiration of all who see them. Drimys Winteri has also flowered well, its creamy tinted blossoms showing to advantage, and nearby the Fuchsia-flowered Ribes, R. speciosum, has produced its flowers, which hang along the undersides of last year's shoots, almost like a fringe of red wool.

Melons.—Main-crop Melons are in full growth and care will be needed to regulate the sub-laterals and keep them under control, as they seem to develop rapidly in almost a single night, and soon become strong, thus robbing the plant of nourishment required for the rapidly swelling fruits. Ample supplies of diluted and warmed liquid manure are of great assistance at this stage, and the paths and borders may be damped frequently with the same material, as the ammonia fumes which are given off help to keep insect pests in check, and are of great assistance in keeping the plants vigorous and healthy. Do not stop the leading shoots too severely, but allow them to grow freely for a time, as they will serve to draw up the sap. Later Melons should also be encouraged to grow freely by closing the house at the earliest possible moment after the direct rays of the sun have passed from it in the afternoons. When this is done, damp and syringe the plants with tepid water, always exercising the precaution so often advised, to prevent moisture collecting at the necks of the plants.

FLOWER GARDEN.

PHORMIUM TENAX.

Although this Liliaceous plant was introduced in 1798, its use in public parks and open spaces has not been so general as might reasonably be expected.

When planted as a bold group in a corner of the shrubbery, or by the streamside, it is extremely effective, and particularly when in flower. The leaves, which are ligulate and radicle, grow to a height of from three to five feet, and the many panicled inflorescence exceeds this height.

The individual flower is interesting; the perianth is carmine in colour and yellowish within; it is about one-and-half inch in length, and composed of six distinct and very tough segments which close together, to form a somewhat tubular and slightly curved structure. The six stamens are attached to the united base of these segments and have carmine-coloured filaments, which are equal in length to them, with the orange anthers extending for a further one-third-of-an-inch. The tri-carpellary ovary is about half-an-inch long, of a dull brown colour and surmounted by a curved style. The fruit forms a capsule practically as long as the flower, and when ripe, the whole inflorescence looks very distinctive for some time, as it remains until the next season's flowers are produced.

In Bermondsey, this plant has successfully withstood the dirt and cold of the past two winters, and has produced both flower spikes and seeds.

Quite recently, I had the opportunity of seeing one of the largest naturalised groups of this plant I have seen; it is situated over a fisherman's cove in Mounts Bay, quite close to the sea, and comprises some scores of plants, on which more than one hundred inflorescences were observed and nearly the same number of old fruiting canes. In this situation they easily held their own with the following strange companions: Bracken, Cow Parsnip, Honeysuckle, Foxglove, Dog Daisy, Red Campion, Robin-run-the-hedge, Spear Thistle, Toad Flax and Bramble, while on the other side of the cove stretched huge sheets of Mesembryanthemums, in full flower, glowing for a number of yards like a yellow satin garment right over the cliff face.

Just above the cove the Phormiums were used as a hedge plant, forming a very successful dividing line between two properties.

Some people hesitate to plant Phormiums, of which there are a number of beautiful kinds, on account of their reputed tenderness, but as they have proved successful in quite a number of places, and have been rarely damaged by frosts, there should be no hesitation in planting them.

Its prospects in this country as a commercial fibre-producing plant have often been discussed. *W. H. Johns, Bermondsey Public Works and Gardens.*

TREES AND SHRUBS.

RHODODENDRON SPHAERANTHUM.

(Supplementary Illustration.)

Rhododendron sphaeranthum, of which the fine specimen shown by Mr. A. M. Williams at the Rhododendron Society's Exhibition, on May 3, forms the subject of the Supplementary Illustration presented with this issue, is a native of Yunnan, where it was discovered by Mr. George Forrest growing in the mountains of the Feng Kow valley at an altitude of 12,000 to 13,000 feet.

It forms a small bush from eighteen inches to four feet high. The flowers vary from deep, clear rose to pure white, and the foliage is aromatic. The species is very near to R. lediodes, the differentiating characters being the lepidote and not puberlous rhachis of the inflorescence, the prophylls being much longer than the calyx, and the lepidote corolla. It belongs to the Cephalanthum series, and gained the first prize in this section of Rhododendrons at the recent Rhododendron Society's exhibition. A full description of the species is contained in *Notes of the Royal Botanic Garden, Edinburgh.* 1926, p. 278.

CERCIS RACEMOSA.

This comparatively new Judas Tree differs from the well-known Cercis Siliquastrum in producing racemes of flowers carrying as many as thirty to forty individual blossoms, each of which is about half-an-inch long, and rose-coloured. It was shown by Mr. Lionel de Rothschild at the recent Chelsea Show (May 25), and received the R.H.S. Award of Merit.

This species was first discovered by Mr. Augustine Henry in 1886, in the Provinces of Hupeh and Szechuen, but was not introduced to cultivation until Mr. E. H. Wilson sent seeds to Harvard University in 1907.

Mr. Wilson states that it is one of the most beautiful flowering trees that he has introduced. In common with the older species, it develops its flowers on the old wood; the flowers are silvery-rose coloured, and a specimen in full bloom is a very attractive sight.

It forms a deciduous tree, growing some twenty feet high. Mr. Wilson states that it has a single trunk, from one to two metres in girth near the ground, and a wide-spreading head from four to ten metres through, consisting of relatively thin branches. He further states (*Plantae Wilsonianae*, Vol. II, p. 88): "The bark is green and smooth, but with age becomes pale grey, and splits into thin, irregularly oblong flakes which are partially exfoliated in old trees. When not in flower, the species is easily recognised by its habit, and by the leaves, which are hairy on the underside."

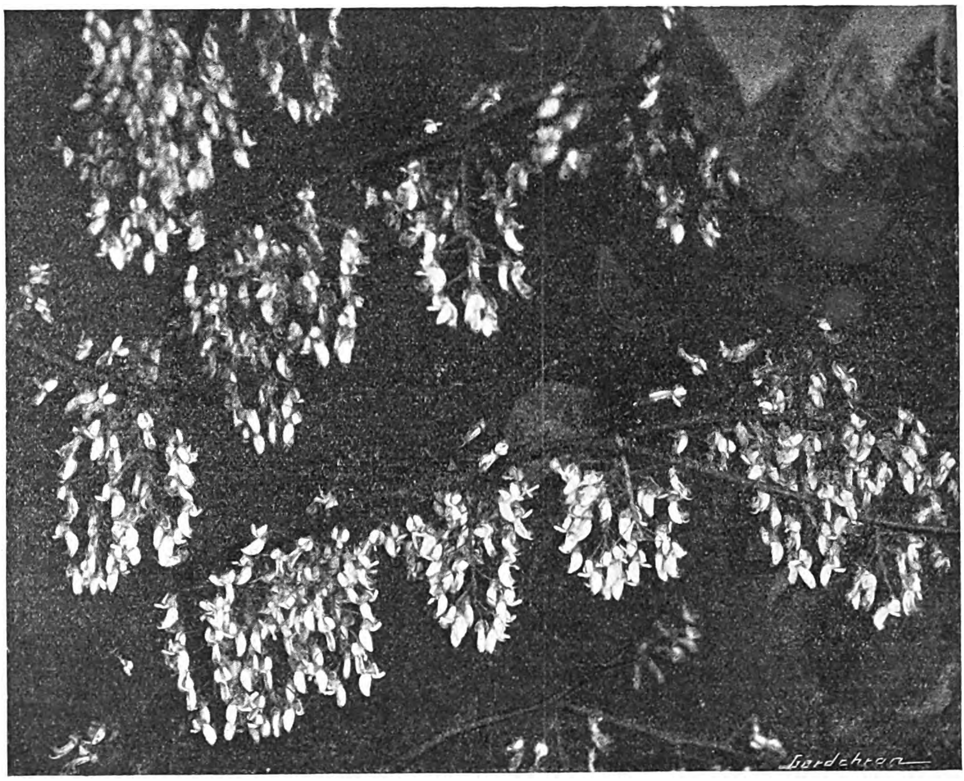


FIG. 216.—CERCIS RACEMOSA.

R.H.S. Award of Merit, May 25, 1927.

THE ROBINIAS.

Although William Cobbett's dream of fortunes for all who would plant a few trees of Robinia Pseudacacia were not, and, indeed, in the order of things, could not be realised, it is due to his persistent insistence of the superlative value of this tree that so many large specimens grace the suburbs of London and are also to be met with in the home counties. In the ordinary sense, the wood of this tree has no timber value, though it has supplied large quantities of "tree nails," especially for use in ship-building. In the early days of the motor-car the wood was used for wheel spokes, but the great vibration soon caused them to become loose, so the use of the Acacia wood was soon abandoned.

But the ornamental value of Robinia Pseudacacia remains as great as ever, and fewer trees are more attractive than this with elegant, pinnate leaves, and pendulous racemes of white flowers. Varieties are fairly numerous, and for general garden decoration few are more valuable than Decaisneana, which is of vigorous habit and bears plenty of beautiful pink flowers. The variety bella-rosea is a dainty little tree of graceful habit. The leaves are distinctly smaller than those of the species, and the flowers are of rose-pink colour. During good seasons the variety semperflorens fairly justifies its name for, from May to the end of the autumn, it nearly always is in flower. The variety monophylla is not consistent for, in addition to bearing solitary, entire leaves, it often has a couple, or even, occasionally, more leaflets, and in these cases the terminal leaflet is always like the entire leaf, enlarged. This variety flowers freely, though it lacks the grace of the varieties with normal pinnate foliage. The mop-headed Acacia so often planted in suburban front gardens is the variety inermis.

The Rose Acacia, Robinia hispida, bears the largest flowers of all the species and, when in bloom, is very showy for the flowers are of deep rose-pink colour. Its variety macrophylla has even larger flowers, but both are rather ungainly shrubs, rarely more than eight feet or nine feet in height. While they are all worth growing for the sake of their handsome flowers, they should not be planted in prominent positions. Robinia Kelseyi grows to about the same size as R. hispida, but it has a much better appearance. Its flowers are also large and of bright rosy-purple colour, and they are succeeded by red seed-pods. In my opinion it is the most beautiful of all the summer-flowering shrubs. *A. C. B.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER, *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc. but they cannot be responsible for loss or injury.*

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Urgent Communications.—*If sent by telegraph, these should be addressed " Gard. Chron.," Rand ; or by telephone, to Gerrard,* 1543.

Local News. -*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

IDEAL GARDENS AND PLANT LORE.

II.—A. GROVE OF JUDAS TREES.

DURING the months of April and May, the observant traveller in the Levant and Italy, the Riviera and the Mediterranean Islands, cannot fail to have his attention arrested by the rich blossoms of a tree to be seen alike in the woods and in the gardens. The first thought, perhaps, is that he has come across a belated Almond ; but this idea is soon rejected. The season is too late, the flowers have too deep a colour, and though the tree is leafless, and its shape is not unlike that of the Almond and its nearest relatives, the blossom is seen to have a different shape as well as a richer hue. If access can be gained to the tree, its true character is soon apparent. It grows to a height of some twenty or more feet, its flowers are papilionaceous and grow in purple clusters, usually denser than those of the Laburnum, and not so long. The blossoming season is succeeded by that of the pale green foliage and the long, flat pods containing a row of seeds. This is Cercis Siliquastrum, or Judas Tree, first introduced to this country in 1596, and described and illustrated in the *Botanical Magazine* t. 1,138. I saw it two years ago in Italy, and again this year in Corsica and on the Riviera, and was so vividly reminded of the legends I had studied years ago that I resolved to make a Grove of Judas Trees in my Ideal Garden. For there are at least half-a-dozen trees which are traditionally associated with Judas the Traitor and his untimely end.

Gerarde, who devotes a chapter in his *Herbal* to the Arbor Judae, states that the Judas Tree " groweth up unto a tree of a reasonable bigness, covered with a dark-coloured bark, whereon do grow many twiggy tough branches of a brown colour, garnished with round leaves, like those of round Birthwort, or Sowbread, but harder, and of a deeper green colour ; among which come forth small flowers like those of Peas, of a purple colour mixed with red, which turn into long, flat cods, pressed hard together, of a tawny or wan colour, wherein are contained small, flat seeds, like the Lentil, or rather, like the seed of Medica, fashioned like a little kidney. . . . This shrub is found in divers provinces in Spain ; the mountains of Italy, and the fields of Languedoc are not without this shrub ; it groweth in my garden. The flowers come forth in the spring, and before the leaves ; the fruit, or cods, be ripe in summer. . . . It may be called in English, Judas Tree, for that it is thought to be that whereon Judas did hang himself, and not upon the Elder tree, as is vulgarly said."

On the Continent the leaves are employed as a salad on account of their agreeable acidity. One of the most beautiful specimens I have seen grows in the grounds attached to the Park Hotel in Corte. A nearly related tree, C. canadensis, is a native of Canada, and the French Canadians pickle the leaves, while the buds and young branches " will dye wool of a fine nankeen colour." The wood of both species is beautifully veined with black. It was maintained in earlier times that the Judas Tree was a favourite haunt of witches who found great delight in gathering for evil purposes around a tree of such a sinister character.

M. De Gubernatis informs us that in Sicily this wild Carob is named Arvulu di Giuda, (arbre de Judas), or Arvulu di Giudeo, *i.e.*, Tree of the Jew. Under this tree one may hear, in April and May, in the Riviera, the peculiar murmur of invisible bees, such as one hears in this country when the Lime trees are in flower. This soft buzzing sound has been a problem to naturalists, since it is frequently heard when not a single insect is to be seen. It has been made memorable by some lines from the pen of the poet Tennyson.

We have seen that in Gerarde's day the Elder tree, Sambucus nigra, was held to be the true Judas Tree. If we turn to Mandeville we shall find the reason for this. Between Jerusalem and the valley of Jehosaphat, says this quaint old traveller, " is still the Elder tree on which Judas hanged himself for despair, when he sold and betrayed our Lord." In some of the early editions of his *Travels* is to be found a very remarkable illustration of this. Langland, the author of *Piers Plowman*, accepts the tradition, and informs us (Vision 1, 67-8) that :—

Judas he japed with Juwen silver
And sithen on an Elder hanged him after.

Professor Skeat's note on the passage gives us some useful references.

" The idea that Judas hanged himself upon an Elder occurs in Shakespeare, *Love's Labour's Lost*, Act V, 2, 600 [What do you mean, Sir ? To make Judas hang himself. Begin, Sir, you are my elder. Well followed. Judas was hanged on an Elder] ; and in Ben Jonson : ' He shall be your Judas, and you shall be his Elder tree to hang on ' (*Every Man Out of Humour*, iv, 4). On the other hand, we read that the Arbor Judae (or Cercis) is thought to be that whereon Judas hanged himself."

He then alludes to Gerarde and Mandeville, to whom reference has already been made. We further find, in the Epilogue to a work by Lilly, entitled *Alexander and Campaspe*, written during the reign of Queen Elizabeth, a confirmation of this idea, showing that the Elder was held in low esteem, and was given as a token of disgrace, just as the Bay, Laurel and Parsley had been symbols of honour :—

" Laurel for a garland, or Elder for a disgrace."

In the sixteenth and seventeenth centuries, we find many allusions to the tradition which linked the death of Judas with the Elder. Thus in 1658, we read in Richard Flecknoe's *Diarium* :—

How Elder stick in pocket carried . . .
It had, he said, such virtuous force,
Where virtue oft from Judas came,
Who hanged himself upon the same.

A little later a reference is found to the " stinking Elder, on which tree that fox-headed Judas was falsely supposed to have hanged himself."

But the Elder did not hold undisputed sway as the Judas Tree any more than does the Cercis. The Fig was one of its rivals. Concerning this tree, which fills a large space in old time plant lore, we are informed that in Sicily it was maintained that it never flowered again or bore any fruit after Judas committed suicide, and that, indeed, the very tree on which he hanged himself was that which his Master had cursed. It is from this tree, by a strange process of reasoning, or lack of reason, that all the wild Fig trees are affirmed to have sprung into existence ! M. Bianca informs us that it is imprudent to sleep under a Fig tree in the warm hours of summer, since the sleeper may be visited by a being of sinister habits. After Christ had cursed the barren tree it lost its foliage and died. The wood, when placed in the fire, yielded only smoke and no flame. On the coast of Coromandel, a Fig tree grew which bore the name of Judas' Purse.

It was not on a Fig tree, however, says another tradition, but on the Tamarisk, that Judas met with his untimely end. To those who know the Tamarisk only as it grows in this country, the idea seems absurd. There are however, specimens of this tree to be seen abroad, which would be quite big enough for a gallows, as I have myself seen. There are, moreover, two different forms of Tamarisk, the African species, Tamarix africana, being in some places more common than the Gallic form, T. gallica, and known in Sicily as Vruca. True, this is now only a shrub, but this is due to the fact that when it grew to the height of the tree it was used by Judas for his unholy purpose, and so fell under the divine malediction. " You are like the wood of the Vruca," says the proverb, " which yields neither ashes nor fire." It is added that " *L'ame de Judas tourne toujours autour du Tamarix, et se tourmente en voyant que son corps y demeure a jamais suspendu.*"

The next tree in our grove must be the Aspen. In the Ukraine it is still held that the leaves of this tree, Populus tremula, have never ceased to tremble, even though there is not the slightest breeze, since the day when Judas hanged himself thereon. It is to this that allusion is made in the Russian proverb : There is an accursed tree which trembles without ever a breath of wind. This tree supplied (according to one tradition) the wood for the Cross of Christ.

The Terebinth is another tree which calls for attention. " Though reduced to a shrub on the Riviera," writes the genial author of *Ligurian Natural History Notes* (p. 83), " the Terebinth must grow to the size of a tree in Palestine, for Judas is said to have hanged himself on a Terebinth." This small tree, Pistacia Terebinthus, which is common in Palestine and the Greek Islands, and extends westward from Egypt through Northern Africa, yields the Chian turpentine, with a pleasant, aromatic smell, which some years ago had a considerable vogue as a remedy for cancer.

Finally, we may mention the Elgantine. What the true Elgantine really was has been the subject of keen debate, but I will content myself with regarding it as the Sweet Briar, because there could be no more welcome addition to our shrubbery than this. The berries of the Eglantine are to this day known as Judas beeren or Judas berries. The Dog Rose was formerly regarded in Germany with ill-favour. Not only was it in some way associated with the Evil One, but legend states that it was cursed owing to Judas using it for hanging himself. Hence it is that the prickles of wild Roses point earthwards. For other notes on the trees associated with Judas, and for remarks on Judas' ears, the quaint fungus connected with the Elder, I may be permitted to refer to my *Flowers and Flower Lore*, pp. 187, 225.

Our grove of Judas Trees will contain some charming plants. The blossoms of the wild Carob, the Tamarix and the Eglantine can hardly be surpassed for beauty and fragrance, and those of the Elder are famous for other reasons. The Fig will yield us fruit, the Terebinth will supply us with turpentine and shade, while we may find in the study of the quivering Aspen leaves food for thought when in philosophic mood. *Hilderic Friend.*

NOTES FROM WISLEY.

As a result of the late spring, the number of plants and shrubs in bloom in the gardens of the Royal Horticultural Society is exceptional, and must be far larger at the present time than at any other period of the year. To the attraction of the Rhododendrons and Azaleas, many of which are still flowering well, may now be added that of Roses, Delphiniums, Poppies, Irises and Water Lilies, while the rock garden is extremely gay with Cistus and innumerable brightly coloured rock plants and alpines.

The outstanding plant in the rock garden is Meconopsis Baileyi, of which there is an extremely fine group (Fig. 217). It is a perennial and bears an irregular cyme of nodding flowers of a most glorious sky-blue colour; a ring of golden-yellow anthers adds to the beauty of the bloom. The species was originally found at an altitude of 11,000 feet, by Major Bailey during his journey through Tibet, in 1913, and from the slight material which he sent home it was incompletely described by Sir David Prain. Eleven years later it was found in flower at the very same spot by Captain Kingdon Ward, through whom it was introduced to cultivation. One of the essential factors for success in growing this plant is the provision of a cool rooting-medium. It obtained the R.H.S. Award of Merit in April, 1926, and a First Class Certificate on June 8, 1927. It is sometimes confused with M. betonicifolia, from which it may be distinguished by the fact that the stem leaves of M. Baileyi are auricled and its style is shorter.

Another plant in bloom in the rock garden, which has also very conspicuous flowers, is Mimulus Whitecroft Scarlet. The blooms are of such a very vivid orange-scarlet that it is necessary to put this plant in a place where it will not clash with or spoil the effect of others of a more delicate hue. Scarlet flowers are also produced by Lychnis Haageana, which has purple foliage and a large, purple calyx. Other plants in flower on the rock garden include Veronica rupestris and Hypericum polyphyllum, which are growing in large patches, Delphinium species, such as D. Maackianum, D. Duhmbergii and Antirrhinum sempervirens, a small, semi-prostrate plant with grey foliage and whitish flowers, which must have a dry place, well sheltered from rain in order to give the best results.

In the alpine house, Campanulas, such as C. nitida alba, C. garganica var. erinus and C. garganica var. hirsuta are in flower. The last, however, is seen to still better advantage in the open, where it is in flower with the variety W. H. Paine.

In the alpine house are also in flower Helichrysum frigidum, with tiny white flowers and a double, white-flowered form of Silene alpestris. A few Primulas are also in bloom, including the pale yellow P. microdonta and the variety violacea with meal-covered, purple trumpets. Although of very recent introduction, these Primulas are already proving valuable garden plants, and may also be seen flowering well in the wild garden near the site of the old fruit room.

In the field garden numbers of Pyracanthas are in bloom. One of the most conspicuous is Pyracantha Rogersiana var. aurantiaca, the creamy-white and strongly-scented blossoms of which almost completely hide the stems and foliage and make a good combination with those of Ceanothus Wisley Blue in flower beside it. Grevillea thyrsoides, which is now in bloom against the Laboratory, attracts to its flowers very large numbers of hive bees, as does Grevillea sulphurea, which is blooming exceptionally freely this year.

Among the various flower trials, the delicate colours of the long-spurred Columbines and Aquilegia species attract considerable attention. Many of the strains sent in, however, are badly mixed, particularly in the case of named varieties. There are, nevertheless, some excellent strains of A. glandulosa and of A. coerulea Mrs. M. Nicholls.

The bearded Irises also make a fine spectacle, and among other attractive varieties in flower may be mentioned the pale blue Mdlle. Yvonne Pellitier, the rather similar but less tall Corida, Prosper Laugier with maroon-coloured falls and standards shot with pruple, and Fro with chestnut falls and yellow standards. To these may be added the rich purple Cardinal, Romola which is rather similar but not so free-flowering, and Rhein Nixe, with violet-purple falls and white standards. Good white-flowered varieties include Istria and White Knight, which blooms considerably later than the former variety, while good, self-coloured yellows include flavescens and the deeper Amber. The latter, however, is apt to fade quickly under the influence of strong sunlight. An American variety which is somewhat out of the ordinary is seen in Lona, the flowers of which have a creamy-white ground, heavily speckled with brown and flesh-pink.

Several of the annual Poppies on trial have commenced to bloom, and among the first out are Papaver apulum, with rather small, scarlet flowers ringed with black, and some Poppies of the Shirley type named Ryburgh Hybrids. The latter are most decorative and, unlike many annual Poppies, will withstand transplanting even when they have attained to a considerable size. These particular plants were not sown at Wisley, but were sent as large seedlings in a cardboard box with little or no soil attached to the roots. *J. E. Grant White.*

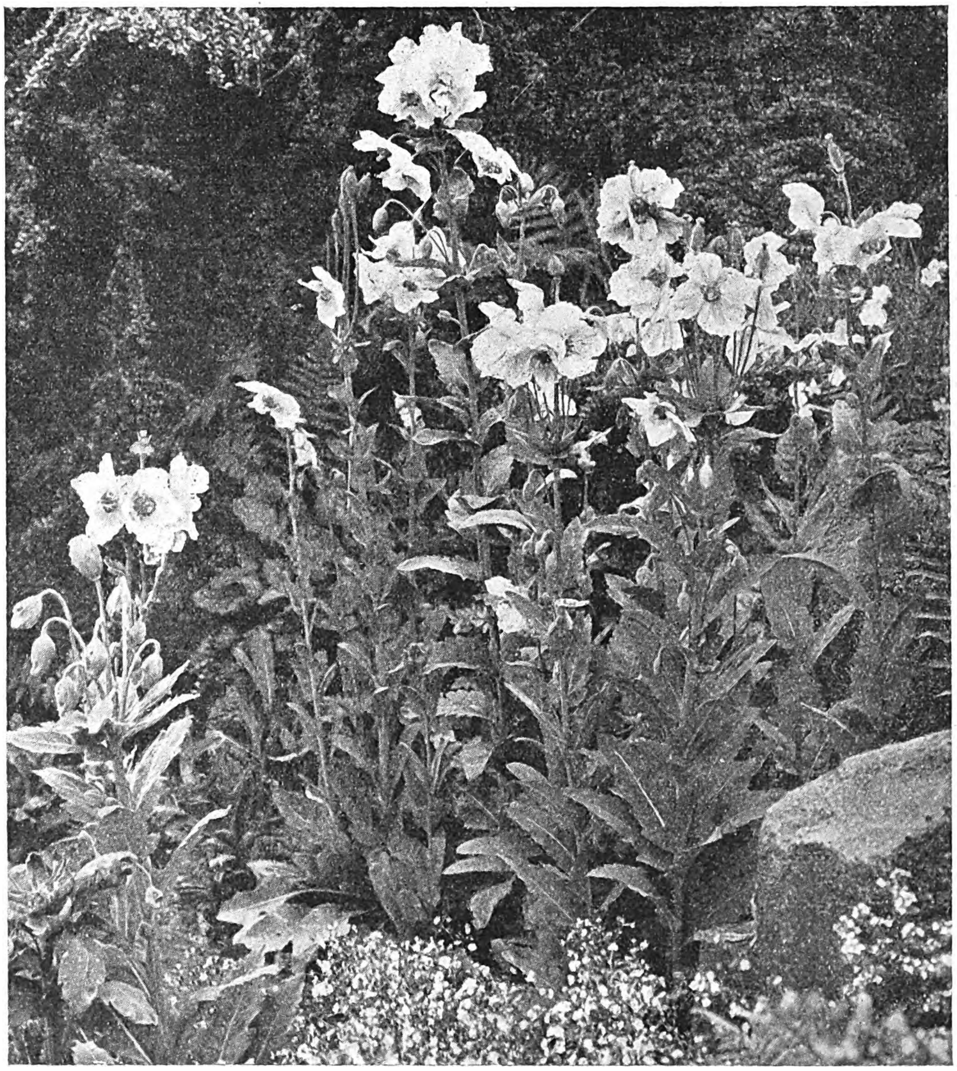


FIG. 217.—MECONOPSIS BAILEYI FLOWERING AT WISLEY.

NOTES FROM EDINBURGH.

Alpines suffered least from the effects of late frosts, and at present the rock garden is a brilliant spot for those who are interested in that particular section of the garden.

One of the features is the perpendicular dry wall on which many suitable plants have established themselves to advantage. Numerous plants of Ramondia pyrenaica are flourishing beautifully and are in full flower. This is more surprising, as the wall has a due southern aspect, and the general opinion is that this particular plant should have its home on the north side. Lewisia Cotyledon has again produced many spikes of pretty, little, star-like flowers which, arising from the rosette of fleshy green leaves, make it an admirably suitable wall plant.

Phyteuma comosum is about to open its numerous whorled inflorescence of pointed, blue and white flowers. It is one of the best of the Campanulaceae family, and should be included in the collection of wall plants in every garden. Young plants establish themselves quite rapidly when planted in chinks between the stones, and are not long in producing tap roots to search for moisture, even in a very limited space.

Another noteworthy wall plant, a native of the Tyrol, is Daphne petraea. It almost clings to the stones, so closely does it grow, and from its very dry situation it produced numerous flowers, rose-pink in colour.

Many other suitable plants are also in flower, and among these a large area is covered with Aethionema Warley Hybrid and its companion, Aethionema schistosum. It is remarkable how the members of this genus flourish and bloom profusely with scarcely any moisture, and young plants break and start to flower the following year after they have been planted.

The Meconopsis family seems to be increasing in popularity, judging by the many enquiries to see the flowering plants and glean as much information as possible of how best to grow them successfully. From among the many species Meconopsis betonicifolia is a warm favourite. Robust in growth and bearing numerous large bright blue flowers on the stem, it rivals in beauty Meconopsis grandis. The majority of the species of this beautiful genus are biennial, and it seems a pity that this should make them unpopular to many enthusiasts. To those with limited space, good results may be obtained by sowing seeds very thinly in shallow fish boxes, and transplanting the seedlings when they are old enough in their permanent quarters. By this method, time is saved, and the pricking off into boxes and frames is obviated. The species suitable for this method are Meconopsis integrifolia, M. latifolia, M. Prattii, M. betonicifolia and M. rudis.

In the moraine a remarkably pretty little plant named Trifolium uniflorum is at present in flower. It is of prostrate habit and produces numerous, delicate pink flowers, which are very attractive. It is a native of South Europe. The same family is well represented by Erinacea pungens. Well established specimens of this plant covered with blue flowers, among the prickly foliage, have attracted great attention. This Erinacea needs an abundance of sun and a dry situation. To obtain good results in propagation, cuttings should be inserted in pure sand in a sun frame, and liberal supplies of water given to ensure ample moisture and encourage root action.

From amongst the countless number of Irises two dwarf species are daily admired—Iris cristata, from the South-east United States, and Iris ruthenica, from North Asia. They are both beautiful and suited to the rock garden. They may be relied on to represent the Iris family for beauty and attractiveness.

In a damp, well drained spot in the bog, Primula flexilipes has again excelled itself by producing many handsome, lemon-yellow flowers. It is to be recommended as a beautiful plant and well worth cultivating. Many species and varieties of the Candelabra section of Primula are at their best in the wild garden. Groups of Primula pulverulenta, P. japonica, P. helodoxa, P. Cockburniana, etc., have brightened up the dark foliage of the countless Rhododendrons and added beauty to the surrounding shade-loving plants. A remarkable beautiful group of Primula microdonta alpicola violacea is flowering by the pond side. This recently-introduced plant is one of the gems of the sikkimensis section. The flowers are violet-purple, thickly powdered with meal inside and fragrant. It loves a well-drained, moist situation, and is quite hardy.

Excellent blooms have been a feature of the several species of Nomocharis mentioned in recent notes, and this year Nomocharis Mairei var. leucantha is outstanding for the beauty of its flowers. The blooms are most attractive, with fimbriated petals and evenly-spotted all over with chocolate coloured spots.

The Chinese Delphinium tatsienense has opened some handsome flowers of a beautiful royal blue colour, borne on spikes two feet high. This species may be used to effect by planting it in bays at the foot of large rock faces, or it may be grouped in the front of the herbaceous border. The variety alba is also a very desirable plant.

Cynoglossum nervosum is a most attractive native of the Himalayan region. Its gentian-blue flowers, compact and dwarf habit, make it an extremely useful decorative member of the Borage family.

In a high mound, facing south-west, and in a dry situation, Nepeta kokanica is flowering profusely. Crowded heads of lavender-blue flowers, on erect stems, are produced from among the pale green foliage; few members of the Labiatae family are finer than this plant.

The pretty, dwarf, composite Bellium bellidioides is carpeting a dry, rocky face with its minute, Daisy-like flowers. It is very handsome and enjoys its warm, dry situation.

Another member of the same family and somewhat unique is Chrysanthemum hispanicum radicans. The flowers are white or yellow, sometimes tinged with pink, and the plant is very floriferous. It is a dwarf species and useful for clothing dry ridges.

The sub-aquatic Herb, Xerophyllum asphodeloides, is very graceful with its long, dense racemes of white flowers. It is a native of North America and succeeds best in peat. Care must be taken to ensure a sufficient supply of moisture at its roots. When planted in large masses it looks particularly attractive.

From amongst the many dwarf annuals, Platystemon californicus may be selected to furnish a profusion of bloom. Treated like other members of the Poppy family, it will repay with a wealth of star-like, soft yellow flowers. *A. M. Cutcheon.*

LIME AND SOOT IN THE GARDEN.

Lime is a necessary component of all good garden soils; it corrects sourness and aids in the decomposition of organic garden manures. Peaty land, moist clays, black, soapy earths, and ground overburdened with humus are all benefited by liming. Lime may be applied in various ways—either in the form of gypsum (sulphate of lime), rough limestone, or ordinary slaked builders' lime (quicklime).

For the average garden, quicklime is undoubtedly the easiest to handle and the most effective, if used at the proper season. It should be well dug in the ground some considerable time before stable manure is put in, as it sets free ammonia as a volatile gas if it comes into direct contact with nitrogenous manures, thus causing waste of a valuable material.

A good test for sourness in the soil is to insert a piece of blue litmus-paper. If the paper quickly turns a reddish colour and remains red after drying, it is a sure sign that the soil is sour, and needs liming before plants can be expected to thrive in it.

A good dressing of quicklime at the rate of from 14 lbs. to 20 lbs. per square rod (or 8 ozs. to 10 ozs. per square yard) should be applied to ground needing it, some three to four weeks before planting time. It is well to leave the lime exposed, after spreading, for at least twenty-four hours during dry weather, before lightly digging it in just below the surface, for lime naturally sinks into the ground and so works its way downwards, sweetening the soil as it goes. Animal manures should not be added till just before planting takes place, for the reason explained above.

A fruitful source of sourness in gardens for which the best remedy is lime, is over manuring through too liberal a quantity being unconsciously applied over a number of years. It may easily happen through ignorance of the state of the ground prior to first working it. This can only be ascertained through ripe experience, or by chemical analysis.

As a remedy against club-root (or finger-and-toe disease) in Brassicas, Kohl Rabi and Turnips, lime is indispensable. It assists in opening up stiff soils, making them more easily tilled, and less cold and sodden during wet weather, owing to the ground being porous. Damp and sodden soils, no doubt, have much to do with the prevalence of club-root in many gardens.

For removing moss from neglected fruit trees such as Apples, Currants and Gooseberries, there are few more effective cures than a good dusting of lime, applied by hand, during dampish weather, or just after a shower of rain, in such a manner that the lime adheres to the damp moss. The result is soon apparent. In about a week's time the moss will be found to drop off, or come off quite easily when touched by the hand or a stiff painter's brush.

Numerous other uses to which lime may be put, and is very much needed, will occur to the reader, *e.g.*, the making up of lime-wash for spraying plants and whitewashing the interiors of greenhouses, store-rooms and so forth.

As to soot, this is invaluable for many purposes—not only for protecting young and tender seedlings against the ravages of slugs and other insects, but also for making soot-water as a liquid manure and a host of other things. As a lawn-dressing there are few better materials than a compost made up of dry, sifted soil, ten parts; lime, one part; and soot, one part. This compost should, however, be made and well-blended a few days prior to use.

Slaked lime and soot, when mixed together in equal parts, make an excellent dressing for young and tender plants, such as Cabbage seedlings, Onions, Leeks, Carrots and Turnips (especially after thinning); but it should be noted that when soot and lime are first mixed together they at once enter into chemical combination, and emit strong and pungent ammonia fumes. These must be allowed to disappear entirely before the mixture is applied to plants. In the same way, soot itself is not only injurious, but destructive to young and tender plants, such as Lettuce seedlings, unless exposed for several days to the open air in such a manner that rain or snow cannot touch it, for the simple reason that fresh soot, as obtained from the chimney-sweep, contains a goodly percentage of nitric acid, powerful enough to not only scorch but burn up any young green growth with which it comes into contact.

Amongst the numerous enemies of Celery, such as slugs, snails, the mole-cricket, and the maggot, the Celery fly appears to be indifferent to all attacks except occasional dustings of the leaves with soot, which should be done during the month of June on the mornings of days that promise to be sunny. A fine dusting will suffice to render the plant distasteful to the fly. If the soot is put on carelessly, it will do more harm than good. Amongst the enemies of Brassicas generally and the Turnip tribe must be numbered the dreaded Cabbage Flea (Haltica oleracea) and the Turnip Flea (Haltica nemorum), against the ravages of which no better remedy can be suggested than dustings of fine ashes or soot (or soot and lime mixed as afore-mentioned)—all such dustings being applied in the early morning, while the plants are wet with dew. To apply a dusting at midday, when the sun is high, is a mere waste of time.

Many plants, such as Perpetual Spinach, Peas and Corn Salad, all benefit, both as to colour and taste, by occasional dustings of soot, applied while the leaves are wet with dew or damp with rain after a shower. *E. A. Saunders, Compton, Sussex.*

VEGETABLE GARDEN.

PROLONGING THE CELERY SEASON.

In order to prolong the season when Celery is available, namely from September to the end of March, I start by sowing some good early white variety, such as Sutton's White Gem, in gentle heat, early in March, to have heads ready for use in September to October. Next I sow a somewhat later white variety, such as Sutton's Solid White or Dobbie's Invincible White, early in April, in boxes kept in a cold frame, the crop to be ready for consumption in October to November. I next sow a good pink variety, such as Dobbie's Favourite Pink, Carter's Giant Pink, or Sutton's Superb Pink, early in May, either out-of-doors or (preferably) in boxes in a cold frame, to provide edible Celery from November to January. Next I make a sowing of some good red variety, of which there are many kinds on the market, about the end of May, to furnish heads for use during the latter part of January and beginning of February. Finally, I make a fifth and last sowing of some such reliable late red kind as Dobbie's Selected Red, in the open in June, to provide good heads of Celery from February to March.

The only way in which the Celery season can be extended fully, apart from choice of seed, is by growing the plants in the usual way in high-level trenches (without collars), rather than by the old-fashioned, low-level trench system, for the simple reason that Celery grown in low-lying trenches, without proper drainage, is very liable to damp off and rot, whereas by the newer and more up-to-date system of high-level trenching such loss is almost impossible. *E. A. Saunders, Havant, Hants.*

MAINCROP AND LATE CARROTS.

Maincrop Carrots are usually sown in April or May, according to the soil and locality. Where conditions are considered good for Carrot production, it is not advisable to make large sowings at any period, but rather rely on frequent sowings each month from April to the end of July, or even early in August in favoured districts. Sow in rows made twelve to fifteen inches apart, according to the variety, and thin the seedlings early; in the first instance, allow the plants an inch apart, and later follow this by drawing every other root until those that are required to mature are four to six inches apart. Routine treatment consists in frequent hoeings, and never allowing the weeds in the actual rows to reach such dimensions that their removal would cause undue soil disturbance.

Where the Carrot fly is known to be troublesome, some preventive measures should be adopted, such as timely and frequent applications of soot, or some other deterrent, during the danger period. Varieties for the above sowings will depend upon the nature of the soil and the purpose for which the roots are required. Where the soil is ideal, one of the Intermediate types, of which leading seedsmen have their own particular strains, may be used. On shallow or heavy land good results may be obtained by using Early Nantes or Chantenay.

About the end of October, those roots which have reached maturity will be ready for lifting, and to prevent loss from splitting or other causes some method of storing will be necessary. Store in sand in a cool shed, or clamp.

Except where it is desirable to produce fully-grown roots, a minimum should be allowed to reach this stage, as it is when fully developed and stored that Carrots are inclined to be woody in the centre; rather endeavour to obtain young roots from periodical sowings.

The late summer sowings should be allowed to remain in the ground (where this is possible) until the roots are required for use. In August make a sowing in a cold frame; the lights will not be necessary until later in the season, when conditions are less favourable. An alternative method is to sow on a well-drained site in the open where the plants may be covered by frames when this becomes necessary. *J. Wilson, Wisley.*

FRUIT REGISTER.

SOME GOOD MELONS.

There is a great number of varieties of Melons, as there are few kinds of fruit which may be raised by cross fertilisation with greater ease. Some few of the old varieties still hold their own; notwithstanding the wealth of good sorts, it is not difficult to make a selection of the best.

Of scarlet-fleshed Melons, Scarlet Premier has scarcely been surpassed, but it is now seldom grown; indeed, I fear that it has been lost to cultivation. The slightly oval fruit is highly coloured and most beautifully netted, the flesh thick, with a faint and delicious aroma.

The mantle of this fine fruit descended upon Blenheim Orange, one of the best scarlet Melons of all time; the fruits are medium to large, and of fine flavour; the plant has a good constitution and is very prolific. Blenheim Orange is not grown so extensively as formerly, but many noted growers still maintain a stock of this sort. Of the newer scarlet varieties King George is excellent, with a richly-coloured flesh, a thin and beautifully netted skin. Superlative, Sutton's Scarlet and A.1. are all possessed of first-rate qualities.

Perhaps no other white-fleshed variety has ever become quite so popular as Hero of Lockinge. It is a very adaptable Melon, succeeding as well in a frame or pit as in a house, and this adaptability, allied to fine flavour and good appearance, had had the effect of rendering it almost ubiquitous. Perhaps the best of the white-fleshed varieties of recent introduction is Universal, with large, bright yellow fruits and a prominently netted skin; the flesh is deep and of fine flavour.

William Tillery is a fine, old, green-fleshed Melon, now but seldom grown; the large, handsome fruits possess a dark green, thin skin, and the pale green flesh is of rich quality. A contemporary of this variety was Eastnor Castle, a very fine grower and cropper, producing fruits of first-rate quality; Ringleader, Emerald Gem and Best of All are other fine green-fleshed varieties. Earl's Favourite is also a much favoured Melon in this class.

This small selection combines old and new varieties and some, if not all of them, are outstanding from the wide choice of the last three decades; there are many others of undoubted merit, but few have withstood the test of time as have the older sorts mentioned. *Ralph E. Arnold.*

FRUIT GARDEN.

A FINE MORELLO CHERRY TREE.

We are indebted to Mr. J. Batty, gardener at Skelton Castle, Skelton-in-Cleveland, the residence of Col. W. H. Wharton, for sending us the photograph of the very fine Morello Cherry reproduced in Fig. 218.

The tree was planted by Mr. Batty, thirty-five years ago, and measures forty-nine feet across, and fourteen feet in height. It is planted against a north wall. As will be seen on reference to the illustration, this fine tree was a mass of blossom this spring, and as the Morello Cherry is comparatively hardy it is to be hoped that the fruits have escaped injury by the recent frosts, and that Mr. Batty will have a bumper crop.

The Morello Cherry is one of the most consistent of all fruit trees in cropping; we have in mind trees that were planted many years ago and which have never failed to furnish fruits each season, and, added to this certainty of a crop is the additional advantage that the Morello Cherry will grow and fruit splendidly on a north wall, where few other kinds would be a success.

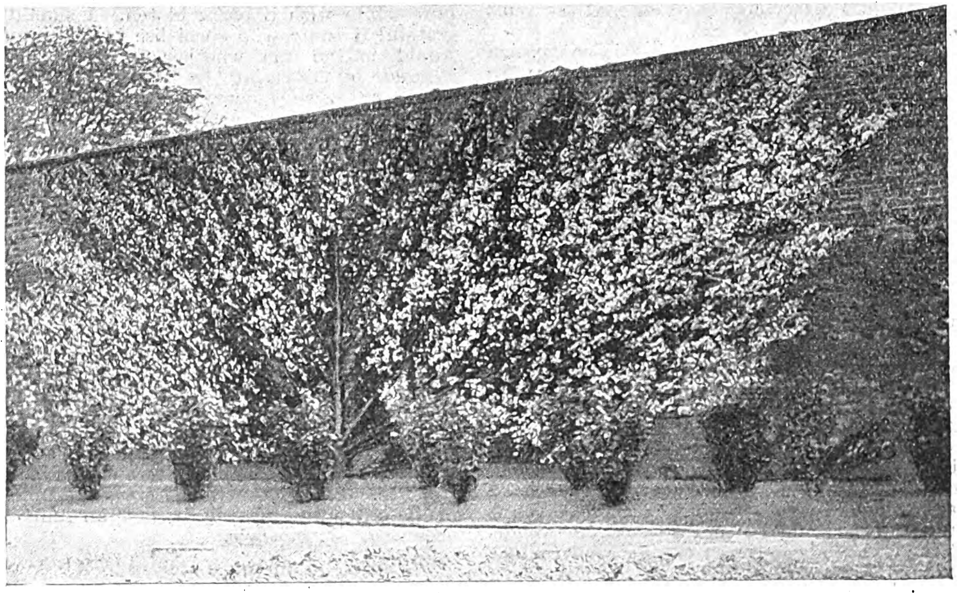


FIG. 218.—A LARGE MORELLO CHERRY TREE AT SKELTON CASTLE, SKELTON-IN-CLEVELAND.

BLACK CURRANTS.

Boskoop Giant is, in my opinion, quite the best Black Currant in cultivation. The individual fruits are large, the bunches long, and the flavour of the fruits is excellent. The variety proves a ready host for the big bud mite, but prompt hand-picking of infested buds will hold this pest in check. Seabrook's Black is an excellent variety which shows greater powers of resistance to big bud mite than any other Black Currant grown. The bunches and the individual fruits are of medium size and good colour. The flavour is acceptable and the variety is a consistent bearer. The variety Goliath bears well, producing short, closely-packed bunches. It is a good Black Currant for exposed situations. The berries are of large size, and the flavour universally approved.

Black Grape is a very reliable cropper, but it never bears a heavy crop—at any rate, not in my garden. The bunches are so short that it is not possible to gather a large amount of fruit from one bush. The colour and flavour are so good, however, that nobody will regret growing this variety.

Blacksmith is a comparatively new sort which has not stimulated my enthusiasm so far. The berries are small and they ripen late. The crop is light and the flavour leaves much to be desired. It may be that this variety requires some special cultural treatment which I have not yet discovered.

Baldwin is an excellent sort in districts that are not liable to be visited by late spring frosts. The flowers open so early that they are frequently ruined by low temperatures. In favoured districts Baldwin is a consistent cropper, bearing heavy crops of good quality fruits. *Geo. H. Copley, N.D.H.*

DEEP TRENCHING.

I have only once seen deep trenching being carried out, that was in Ligure, North Italy. A strip some 150 or 200 yards long by about twenty yards, somewhat terraced, was being worked by three men, and more than half the work had been done when I saw it.

The trench was a good four-and-a-half feet deep and perhaps about the same in width; when the workers stooped in their work they were completely hidden; when standing, only their heads could be seen from a distance. The work was done with tools like the French Croc de Montreuil, with a short, three-foot, handle; this tool seems to be like that listed as Canterbury Hoe in English catalogues; and the deftness with which the men placed the clods where desired was admirable; occasional lumps of rock were heaved on to the surface for subsequent removal, but smaller stones were not taken out. There was no apparent difference between top- and sub-soils, and the hoefuls were put at all sorts of levels, irrespective of their source. Presumably, the patch had been similarly treated before.

Unfortunately, I was not able to make enquiries, as my remnants of Portuguese and Spanish, though quite effective for beggars and itinerant troubadours, was quite useless for innate enquiry into husbandry with Italians. The mode of treatment when the end of the patch was reached would have been interesting; I rather opined that probably the big trench was left open at the end and so would form a starting point in another year. In summer the place is thoroughly sun-scorched, but considerable irrigation from cheese-like tanks of reinforced concrete is provided.

Certainly on the "Old Red" drifts of my garden, it is well to avoid bringing up much subsoil. The French "primeur" does not seem to go in for much deep cultivation, and relies upon a very enriched top-soil. *H. E. Durham.*

RASPBERRY STEM-BUD MOTH.

(LAMPRONIA RUBIELLA, BJERK.)

THE caterpillars of this moth are now feeding within the buds of Raspberries and Loganberries. The buds of these plants should be examined, and if the pest is present, control measures should be undertaken. The pest is easily detected because the bud which has been attacked withers and dies. It has been stated that top buds on the canes are the most liable to attack; under my conditions this is certainly not true. Infected buds may be found in all positions.

Examination of the canes and the removal of the infected buds by hand is the best method of control for small batches of canes. When the pest is present in large plantations, hand picking is not a practical proposition, and other control measures must be adopted. Spraying the canes with paraffin emulsion will be found a very useful aid in reducing the pest. The spray should be driven well into the buds because it is useless unless it actually reaches the caterpillars and for this reason spraying should not be delayed too long; if the caterpillars can be sprayed just after they have entered the buds they are much easier to kill.

Another point often overlooked in connection with this pest is the fact that not only are the buds on the Raspberry canes attacked, but also many of the young suckers just pushing through the soil. Any control measures that are undertaken should also be directed to the soil as well as the canes. *Somerset.*

HOME CORRESPONDENCE.

Growth of Plants under Vitaglass.—Listeners-in amongst your readers who have heard me speak at one time or another about the value of sunlight, may be interested in a novel and arresting piece of independent testimony. It has just come to me from Kew. Some weeks ago, two boxes were each planted with six Lettuces, on the same day, one beneath ordinary glass, the other beneath the special glass which admits the sun's ultra-violet rays. They have been tended in exactly the same manner. When pulled on the same day and weighed, the weight at the end of six weeks of the six grown under ordinary glass was 8½ lbs.; of the six grown under Vitaglass, 9¾ lbs., that is to say, the ultra-violet rays, and any others of value which Vitaglass may transmit, have added 1¼ lb. to the weight of six Lettuces in six weeks. Under them the plants grew much sturdier, of a deeper shade of green and with bigger hearts. The Kew authorities are proceeding to test other plants of economic and dietetic value on the same lines. *C. W. Saleeby, M.D., F.Z.S., F.R.S.E.*

Piercing Bowling Greens.—In the interesting note on bowling greens, on p. 436, *W. G. R.* refers to the piercing of the greens in the autumn. When I first saw greens that had been treated in this manner, I concluded that the holes had been caused by the removal of weeds. The value was apparent in the following spring and summer for at every spot where the greens were pierced the grass had made luxuriant growth, showing that the turf had benefited greatly by the operation. *T.*

The Early History of Gladiolus primulinus Hybrids.—Among the names of those who realised very soon after its introduction that Gladiolus primulinus provided valuable new "blood," that of the French firm of Cayeux and Le Clerc should not be forgotten. They probably started raising seedlings as early as M. Lemoine, and on August 27, 1908, they showed a collection of unnamed seedlings at the autumn show of the Société Nationale d'Horticulture de France, at Paris. This it will be seen is some years before any English-raised hybrids were exhibited. It would seem, therefore, that to Dr. Van Fleet, Lemoine and Cayeux and le Clerc must be given the credit for the first primulinus hybrids, and to Messrs. Lemoine the credit (or otherwise) for the first named variety, in 1908. The fact that some English journalists were not aware of this does not alter the historical fact. History, horticultural or other, so often falls back on "following the authorities," where facts are unobtainable, but surely, we who live so near to the facts can do a little better than that. *Edward A. Bunyard.*

Pollenation of Schizanthus.—During the last month, I have been pollenating my plants of Schizanthus. I grow some half-dozen or more strains, and in order to keep each strain distinct, the plants are kept in a cool greenhouse from which bees and butterflies are excluded. I apply the pollen of each variety to the stigmas of the same variety by means of a small camel-hair brush, a separate brush being used for each strain, so that there shall be no intermingling of pollen, thereby diminishing the distinctive colours and markings of the several strains. What has attracted my attention is the great difference there is in the strains in the amount of pollen, and in the number of seeds produced in the seed-pods. The scantiness of pollen compels me to select special plants in some strains or fertilisation would become almost impossible and the strain die out. This is especially the case with that variety in which the bloom is pure white with a black blotch. I should be grateful if those who specialise in Schizanthus would inform me whether fertility is best assured by applying to the stigma pollen from the same bloom, from another bloom from the same plant, or from a bloom of another plant. The Schizanthus is protandrous, and when the anthers dehisce and expose the pollen, the style and stigma are undeveloped and remain so for several days. In the still air of a greenhouse the pollen is not, of course, removed as it would be out-of-doors, and remains therefore still available when the style has come forward and turned upward and the stigma become receptive. Usually I have chosen pollen from another bloom or plant rather than that from the individual bloom itself. An interesting physiological problem is the reason (or purpose ?) why some blooms are completely self-sterile, *e.g.*, Coe's Golden Drop Plum, and some others completely cleistogamous, such as the Sweet Pea, in which cross-fertilisation can only be effected by what may be termed an act of violence. Though generally "crossing" appears to be advantageous, it is not an universal necessity. *J. E. Shaw.*

Gladiolus.—I am much obliged to Mr. Edward A. Bunyard for his notes on Gladioli on page 417 of your issue of June 11. I would be grateful to others who would add to our information concerning Gladioli and their origin. In time there could be compiled an authoritative monograph. I wish it could be proved that the Gandavensis section originated in England, as is suggested by Mr. Bunyard, and that it could have been launched under an English name in the same way as the Langprim section, now popularly called Primulinus hybrids. Some of Mr. Bunyard's corrections would not have been made if he had realised that my article was being printed in parts, and that he had not read all that I had to say. For I do give credit to Mr. Standish, and although I did not know that he had sent out so many varieties, I used to hear my grandfather speak of him and his varieties with respect. I have, of course, not been able to glean any records from that quarter. And I mentioned G. Brenchleyensis also; but my grandfather would never agree that there was any evidence of G. psittacinus blood in this section. Mr. Bunyard's notes, I am glad to see, suggest that once more England has led the way in progress. Continental peoples are quick to exploit what we invent or raise, our commercial instincts apparently not being so highly developed as their own. I particularly stated in my article that I was merely trying to give an impartial account, so far as my information goes; my notes are based on memory and on memoranda placed from time to time through a long period of years in a drawer of my desk. Apparently, Mr. Bunyard's horticultural library is better stocked than my own. But between us we could show that the Gladiolus family did not originate to-day, nor even yesterday, but is the *summum bonum* of the work of several generations of ardent, patient labourers. *James Kelway.*

SOCIETIES.

ROYAL HORTICULTURAL.

JUNE 21 AND 22.—The usual fortnightly meeting was held on Tuesday and Wednesday last in the Society's Hall, Vincent Square, Westminster. The exhibition comprised good groups in the various sections, but the whole of the space was not filled, and the attendance was only moderate.

The Orchid Committee made one award to a novelty. The Floral Committee granted eight Awards of Merit. The most important exhibits before the Fruit and Vegetable Committee were a collection of pot fruit trees, and another of varieties of Melons, the latter from LORD LECONFIELD's gardens.

Orchid Committee.

Members present:—Sir Jeremiah Colman, Bart. (in the chair), Mr. Gurney Wilson (Secretary), Mr. Clive Cookson, Mr. A. Dye, Mr. Fred Sander, Mr. H. S. Alexander, Mr. J. Cypher, Mr. J. E. Shill, Mr. A. McBean, Mr. John Cowan, Mr. J. Wilson Potter and Mr. E. R. Ashton.

AWARD OF MERIT.

Miltonia Lycaena var. Franconia (Princess Margaret × Lord Lambourne)—From FRANK MERCER, Esq., Clovelly, Steyning. A fine advance in size and colour. The plant bore three large flowers, the petals of which are unusually broad, and with much crimson colouring. The flatly displayed labellum has a light reddish-brown blotch with radiating lines, and a purplish suffusion on the central area.

CULTURAL COMMENDATION.

To Messrs. J. AND A. MCBEAN, Cooksbridge, Sussex, for a well-grown plant of Anguloa Ruckeri with eleven flowers.

GROUPS.

Messrs. COWAN AND Co., Southgate, exhibited a group in which Cypripedium Curtisii Sanderae and C. Maudiae stood out prominently. The attractive Odontoglossum Williamsianum and several varieties of O. crispum xanthotes were arranged together with Odontioda Chantecler and large-flowering Miltonias of the vexillaria section. Along the back were Cattleya Harold alba, a richly coloured form of C. Dupreana, and the pure white C. Mossiae Wageneri.

Messrs. CHARLESWORTH AND Co., Haywards Heath, had several attractive forms of Laelio-Cattleya Aphrodite in their exhibit, arranged with the white-flowering Cattleya Mrs. Myra Peeters and the rose-coloured Wilsonara insignis. Miltonia hybrids were a feature and included distinct varieties of M. gattonensis, M. Lucia, rich crimson, and M. Princess Mary. Lycaste aromatica and Odontioda Queen Mary were also included in this exhibit.

Messrs. SANDERS, St. Albans, showed several interesting Orchids, such as Maxillaria tenuifolia, Paphinia cristata, Trichopilia lepida and the pretty Vanda suavis colorata. Other noteworthy plants were Brassavola Digbyana, from which numerous hybrids have been raised, Coelogyne Stanny, with greenish-yellow flowers, Dendrobium Victoriae Reginae, slate-blue, and the curious Masdevallia Shuttleworthii.

Messrs. STUART LOW AND Co., Jarvisbrook, Sussex, arranged a group in which the central object was a well-flowered plant of Dendrobium thyrsiflorum, surrounded by good forms of Cattleya Mendelii, Cattleya Mossiae var. King of Spain, and C. Tityus. Laelio-Cattleya Aphrodite is a showy hybrid, while Cattleya Woltersiana, with a spike of four large mauve-coloured flowers, also met with appreciation. Plants of Aerides virens and Dendrobium suavissimum were both well-flowered.

Messrs. J. AND A. MCBEAN staged Cattleya Warscewiczii var. Profusion, with five large flowers, Laelio-Cattleya Warrior var. Imperator, and Odontioda Thela, an object of good cultivation.

Messrs. H. G. ALEXANDER, LTD., staged

Miltonia Hyeana var. Garnet, with a bold crimson blotch on the base of the lip.

The Executors of the late Mr. H. T. Pitt, Stamford Hill, showed Miltonia Wm. Pitt var. Dusky Monarch, of rich crimson colour, and generally regarded as one of the best of its kind.

Floral Committee.

Present : Section A.—Mr. H. B. May (in the chair), Mr. Arthur Turner, Mr. J. M. Bridgeford, Mr. D. Ingamells, Mr. A. Vasey, Major G. Churcher, Mr. G. W. Leak, Mr. Charles E. Pearson, Mr. Donald Allan, Mr. James B. Riding, Mr. E. R. Janes and Mr. Courtney Page.

Section B.—Mr. Gerald W. E. Loder (in the chair), Mr. Charles T. Musgrave, Sir William Lawrence, Mr. Hiatt E. Baker, Mr. G. Yeld, Mr. A. Williams, Mr. R. W. Wallace, Mr. L. R. Russell, Mr. Mark Fenwick, Hon. Henry D. McLaren, Mr. Reginald Cory, Mr. W. B. Cranfield, Mr. George Harrow, Mr. G. Reuthe, Mr. Amos Perry, Mr. F. G. Preston, Mr. James Hudson, Mr. E. H. Wilding, Mr. R. D. Trotter and Mr. N. K. Gould, Secretary.

AWARDS OF MERIT.

Alstroemeria haemantha B. Ladhams.—Of recent years A. haemantha has given rise to a number of beautiful varieties with larger flowers which appear to be somewhat hardier than the species. The present variety has a goodly umbel of beautiful, soft pink-coloured flowers. Shown by Messrs. B. Ladhams, Ltd.

Escallonia Donard Gem.—This is a very floriferous variety of E. langleyensis type bearing pale rose coloured flowers. Shown by The Donard Nursery Co.

Azalea Benikirin.—A dwarf Japanese Azalea of somewhat spreading habit. It bears relatively large, semi-double, bright orange-salmon coloured flowers which have small, dull crimson spots. Shown by Mr. Amos Perry.

Paeonia Globe of Light.—A beautiful, single, herbaceous Paeony. The large flowers are of soft pink colour, paler at the margins, and there is a large cluster of yellow filaments. Shown by Messrs. Kelway and Son.

Paeonia Orion.—A very bright, single-flowered, herbaceous Paeony. The round flowers have substantial ruby-coloured petals, and the compact cluster of filaments are rich yellow splashed with ruby. Shown by Mr. W. B. Cranfield.

Lilium concolor, Dropmore variety.—This is a brilliantly coloured variety of the Chinese Orange Lily which is figured in *Bot. Mag.*, tab. 1,165. It appears to have been raised in Manitoba, and has only a sentimental connection with Dropmore. Mr. Amos Perry informs us that the plant grows to about two feet in height. The widely opened flowers are of rich orange-red colour with a ray of small crimson spots. Shown by Mr. Amos Perry.

Calceolaria sp., A. C. 405.—The seed of this useful Calceolaria was collected by Mr. Coomber in the Andes, and plants have been grown, unprotected, at Stevenage for over a year. The plant has large, ovate leaves of harsh texture and covered with long hairs. It appears to be exceedingly free-flowering and will probably prove to be a valuable border plant. The flowers, which are about the size of those of C. amplexicaulis, are of bright yellow colour and have a characteristic lobing of the pouch. Shown by Mr. Clarence Elliott.

Cistus cyprius immaculatus.—This seems to be a very vigorous variety. It bears large white flowers which have a small, primrose-yellow zone. Shown by Sir William Lawrence, Bt., Burford, Dorking.

FOR TRIAL AT WISLEY.

Rose Abol.—This is a well-formed, free-flowering H.T. variety. The blooms are fully double, milky-white with flesh-pink colouring in the centres of the blooms, which are pleasantly fragrant. Shown by the Chalk Hills Nursery Co.

Dianthus Elizabeth.—A very fine garden Pink. The flowers have the appearance of miniature Florists' Carnations and are of rich orange-red colour, with a ray of small crimson spots.

Dianthus Othello.—This is a rather larger garden Pink and fully double. The flower is of rich crimson colour, flushed with dark maroon. Both varieties, which are fragrant, were shown by Mr. C. H. Herbert.

GROUPS.

Delphiniums were the principal floral feature of the show, and these were shown in especial magnificence by Messrs. Blackmore and Langdon, who had tall, imposing stands filled with superb spikes of bloom. Their chief varieties were Purple King, of rich colour; Phyllis, bright lavender; Mrs. Townley Parker, pale blue; Lord Derby, reddish-mauve; Constance, sky-blue with white eye; Blue Boy, rich blue with white eye; and Mrs. Colin McIver, dull mauve.

On the other side of the entrance, Messrs. Kelway and Son had a large group of Delphiniums and Paeonies. The former included Smoke of War, Sir Alfred Keogh and Rev. E. Lascelles. The chief of the single Paeonies were Globe of Light, pink; Sir Henry Stone, rose; and Moonlight, white. Amongst the double varieties were Dr. Bovania, rose; Langport Triumph, blush; Alsace, ruby; and General Buller, deep rose. Mr. T. Carlile had some good spikes of Delphiniums associated with Gaillardias. His Delphiniums included Henley, dark blue with white eye; Triumph, lavender; Fair Lady, pearly lavender; and Madame A. Nonin, pale blue.

In a well-arranged corner group, Messrs. M. Prichard and Sons displayed many good Delphiniums with Tritomas, Campanulas, Oriental Poppies, Heuchera and a goodly collection of garden Pinks.

Delphiniums were well arranged with Paeonies and Irises by Messrs. R. H. Bath, Ltd. Chief amongst the double Paeonies were Sarah Bernhardt, pink; Madame Emile Lemoine, white; Graziella, cream, and Madame Moutot, rose. Their single varieties included Abiah, rose; Aurora, ruby; Labades, purple; and Torpilleur, pink.

The Chalk Hills Nursery Co. had an interesting collection of Oriental Poppies, Delphiniums, Campanulas and other seasonable border flowers. Messrs. Wm. Wood and Sons also set up an attractive collection, in which Astilbes, Geums, Armeria Bees' Ruby and Delphinium nudicaule were prominent. In an exhibit by Messrs. G. and A. Clark, we noted some good Eremurus, Campanulas, Scabiosas, Irises and Delphiniums. A central stand of Tricuspidaria Hookeri in the display of Mr. G. Reuthe drew attention to various Ericas, an orange-coloured variety of Azalea macrantha, Lupines, Dianthuses and various alpines.

Mr. Amos Perry had a very attractively-arranged exhibit which contained a number of Tritomas of which the chief were The Beacon, caulescens and some elegant gracilis seedlings. He also showed a good batch of Orchis foliosa, and the uncommon L. Washingtonianum. In the centre of his group Mr. W. Wells had a large stand of the gracful Gypsophila Boston Fairy, and also showed Campanulas, Delphiniums and Erigeron Pink Pearl. Several varieties of the dwarf Thymus Serpyllum were staged by Messrs. Waterer, Sons and Crisp, and they also displayed dwarf Musks, dwarf Campanulas, and the blue Moltkia petrea.

In a collection arranged by Messrs. Bakers, Ltd., there were good spikes of Delphiniums, Lychnis Viscaria splendens plena, Lupins and Giant Thrift.

An especially valuable collection of English Irises and late-flowering species was shown by Messrs. Barr and Sons. The former included Duchess of York, of rich blue colour; Prince Mauritz, rosy-purple; King Conrad, purple and Prince of Wales, bright blue. The taller-growing Irises included I. Monnieri, of rich colour; I. monaurea, bearing bright yellow flowers; I. ochracea and I. ochroleuca Queen Victoria. A large exhibit of seasonable border flowers was set up by Messrs. D. Ladhams, Ltd. In the centre there was a collection of the taller Campanulas, including the new variety Locarno, bearing large, rounded, shining blue flowers. They also displayed vases of Heucheras in variety, Betonica superba and Astrantias. Messrs. Stewart and Son showed English Irises, useful varieties of Gladiolus Colvillei, Alliums and a neat collection of alpines. The Misses Hopkins and Messrs. Maxwell and Beale had seasonable rock garden exhibits, and the latter had various dwarf Ericas and Kalmias. Messrs. Tuckers, Ltd., showed Delphiniums, Aquilegia pyrenaica, Primula capitata and other useful hardy plants. Delphiniums, and garden Pinks were staged by Mr. H. G. Longford.

In the Annexe, Mr. C. H. Herbert had a delightful collection of his border Pinks, which included several of the varieties we admired at the Chelsea Show. Mr. J. Klinkert showed Topiary specimens.

An interesting collection of Liliums was contributed by Messrs. Wallace and Co., who had L. Martagon album, L. regale, L. japonicum and L. umbelliferum Sappho. Mr. J. Robinson showed various rock plants, including dwarf Thymes and Pinks. Mr. W. J. Unwin again set up an attractive exhibit of the variety Coonara of the Iceland Poppy.

An interesting collection of shrubs was staged by The Donard Nursery Co. The chief feature was a collection of varieties of Leptospermums of considerable merit. They also showed Tricuspidaria lanceolata, Ozothamnus rosmarinifolius and Escallonias. Mrs. Carl Holmes, The Node, Welwyn, exhibited a collection of Gerbera Jamesonii seedlings. Messrs. J. Cheal and Sons staged Dahlia blooms, chiefly of the Star, Mignon and dwarf Decorative types.

Sweet Peas of great merit were shown by Messrs. Dobbie and Co. In addition to the varieties Hero, Sunkist, Prince of Orange, Camellia and Pinkie, which we noted at the previous meeting, they had Gleneagles, a splendid lavender variety, and Flamingo, of brilliant orange-cerise colour. Messrs. S. Bide and Sons had a general collection of Sweet Peas, which included Alma Beauty, Constance Hinton, Charming, King Mauve, Winifred McLaughton and George Shawyer.

Small collections of Roses were shown by Messrs. B. R. Cant and Sons, Mr. J. H. Pemberton and Messrs. George Bunyard and Co. The former included Scarlet Climber, Pink Pearl, Cupid and Lemon Pillar. Mr. Pemberton staged The General, Francesca, Los Angeles, Vanity and Mrs. Henry Morse, while the last-named again showed a valuable collection of old-fashioned Roses, including Petite d' Hollande and cristata, two pretty Moss Roses; the Provence Rose and Cottage Maid.

Carnations were staged by Messrs. C. Engelmann, Ltd., who had good vases of Topsy, Red Laddie, Peerless and Arnos Grove, while Messrs. Allwood Bros. had George Allwood, Wivelsfield Apricot, Mary Allwood and a collection of Dianthus Allwoodii. Several good vases of Malmaisons were set up by Messrs. Stuart Low and Co., who also showed Brilliant, Eileen Low and Topsy, of the perpetual type.

An especially well-arranged group of stove and greenhouse plants was displayed by Messrs. John Peed and Son. They had superb plants of Dracaena Victoria, various well-coloured Codiaeums (Crotons), many well-grown Caladiums, Hydrangeas and goodly groups of Gloxinias and Streptocarpuses.

A smaller but also a tastefully arranged exhibit of stove plants was made by Messrs. L. R. Russell, Ltd., who included highly coloured Codiaeums, Medinilla magnifica, Anthurium crystallinum and Dracaena Victoria.

A large space was well-filled by Messrs. Sutton and Sons with superb batches of Streptocarpus. The flowers were unusually large and of high quality. The plants were arranged in colour groups and of their Giant strain. The principal colours were blue, mauve, pink, deep pink, rose, purple and white.

The competition for the Mrs. E. Harding Cup was a little unfortunate in point of numbers, but the collection of W. B. Cranfield, Esq., East Lodge, Enfield Chase, which won the Cup, was of great merit. His six vases included

Claire Dubois, double pink; E. G. Hill, double rose; Orion, single ruby, and Emperor, single rose. Major J. Churcher, Beckworth, Lindfield, who was a good second, had valuable vases of Dr. Bretoimeau, double pale pink; Premivere, creamy-yellow; and Sarah Bernhardt, double rose. Sir William Lawrence, Bt., Burford, Dorking, was third.

Fruit and Vegetable Committee.

Present:—Mr. C. G. A. Nix (in the chair), Mr. J. Cheal, Mr. H. S. Rivers, Mr. Geo. F. Tinley, Mr. T. Pateman, Mr. A. Metcalfe, Mr. Ed. Beckett, Mr. A. Poupart, Mr. E. A. Bunyard and Mr. A. N. Rawes (Secretary).

Groups.

Messrs. Rivers and Son exhibited splendidly fruited pot fruit trees, including Peaches, Nectarines, Cherries and Figs. The Peaches were of the variety Peregrine, and the excellent little trees were splendidly cropped with fruits of choice quality. The Nectarines included Early Rivers and Lord Napier, whilst the Cherries comprised such excellent sorts as Ursula Rivers, May Duke and Belle d'Orleans.

The Rt. Hon. Lord Leconfield, Petworth Park, Sussex (gr. Mr. F. Streeter), showed twelve varieties of Melons very pleasingly arranged on stands and dishes decorated with foliage. The varieties included Matchless, Ideal, Everyday, Satisfaction, Delicacy, King George, Model, Lockie's Perfection, Jasper Queen, Peerless, Tender and True, and Constitution.

Messrs. Laxton Brothers exhibited baskets of excellent Strawberries of the varieties King George, The Duke and Duchess of York.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall, on Monday, June 13. Mr. T. R. Butler in the chair. Seven new members were elected.

Six members withdrew interest which amounted to £25 15s. 4d., and four members over the age of seventy years withdrew from their deposit accounts the sum of £122 1s. 8d. The sum of £169 8s. 11d. was passed for payment to the nominees of two deceased members.

The sick pay on the private side amounted to £65 12s. 8d., and on the State Section to £59 14s. 2d. Maternity claims totalled £7 10s. 0d.

Grants were made to twelve members for dental and optical treatment from the State section, amounting to £51 5s. 4d., and seventeen other cases were considered.

LEICESTERSHIRE AGRICULTURAL.

For the second year in succession there was an exhibition of horticultural produce in connection with the Leicestershire Agricultural Show, held at Leicester, on June 10 and 11, 1927. The show was opened by Prince Henry in exceptionally favourable weather, and there was a large attendance of visitors. The judges in the horticultural section were Mr. Jos. Smith, of Kings Heath Park, and Mr. J. G. Weston, Chatsworth Gardens.

The schedule comprised four classes. Class 1 was for a group of miscellaneous plants arranged for effect, occupying a space of three hundred square feet. The first prize of £20 was awarded to Mr. Wm. Holmes, of Chesterfield. Class 2 was for a collection of hardy perennial plants and cut blooms, excluding Roses and shrubs, and the first prize of £15 was won by Messrs. W. Artindale and Sons, of Sheffield. In Class 3, for a collection of Sweet Peas, the first prize was awarded to Mr. Robert Bolton, and in Class 4, Mr. C. Vickers, of Leicester, was first, his collection of cut Roses winning the premier award.

Besides the classes for competition, there were numbers of fine non-competitive groups. Large Gold Medals were awarded to Messrs. John Waterer, Sons and Crisp for Rhododendrons and flowering plants; and to Messrs. Alex. Dickson and Sons, of Belfast, for an exceptionally fine collection of Sweet Peas. Gold Medals were awarded to Messrs. Allwood Bros, Messrs. Bakers, of Codsall; Messrs. Daniels, of Norwich, and Mr. C. Vickers; while Silver Medals were won by Messrs. Hewitt and Co., Solihull, for Delphiniums and Lupins; Mr. R. V. Roger, Pickering, for a miniature alpine garden; and Mr. H. N. Ellison, of West Bromwich, for exotic Ferns.

Obituary.

Job Ash.—We regret to learn that Mr. Job Ash, who was gardener to the Dean and Canons of Windsor for forty-three years, died last week. Mr. Ash had served four Deans of Windsor, and he took special pride in the famous Cedar on the lawn of the historic Deanery garden, near the Castle, and in a Willow, which is said to have been raised from a cutting taken from a tree on the battle-field of Waterloo.

Thomas Main.—The death took place, at Glasgow last week, of Mr. Thomas Main, who has long been associated with horticultural trading interests in this country. In his early years he was in the employment of Messrs. Alex. Cross and Sons, Ltd., Glasgow, then he became a member of the firm of Messrs. Williamson, Main and Guinnell, seed merchants, Glasgow, and subsequently started business on his own account as a nurseryman at Bowling. Thereafter he was appointed London representative of Messrs. Cross and Sons, but more recently he worked up a good connection among growers in the Leigh Valley and the Channel Islands for his own fertilising products. Deceased was about seventy-two years of age.

George F. Moore, V.M.H.—We deeply regret to record the death, on the 19th inst., of Mr. George F. Moore, of Chardwar, Bourton-on-the-Water, Gloucestershire, within a week of his seventy-second year. Deceased was one of the most successful amateur cultivators of Orchids, and his fine exhibits of these plants at the R.H.S. meetings will long be remembered. Cypripediums were his special favourites, and with them he reaped many successes. At the R.H.S. meeting on November 27, 1923, no fewer than four First-Class Certificates were awarded to as many hybrids from his collection, and at the following meeting three more were obtained. Mr. Moore was first attracted to the beauties of Orchids when residing in India in 1874. He recently presented to the R.H.S. the Gold Medal bearing his name, to be awarded annually to the finest Cypripedium shown during the year. Possessed of a charming disposition, and at all times very generous in distributing his plants, Mr. Moore was a universal favourite, and his presence will be sadly missed by a large number of horticultural enthusiasts.

James Ward.—An outstanding figure in forestry circles in the North of Scotland has passed away in the person of Mr. James Ward; who for over half-a-century had charge of the northern portion of the extensive Seafield estates, with headquarters at Keith. Mr. Ward was eighty-two years old; he was a native of County Wicklow, Ireland, where in 1866 he became an apprentice under Mr. Charles S. France, that wonderfully alert and keen old forester, who still takes a prominent part in the affairs of the Aberdeen Branch of the Royal Scottish Arboricultural Society. Mr. France was then in charge of Powerscroft estates, Co. Wicklow. From Powerscroft, Mr. Ward went to serve under Mr. France's father, who was then head forester on the Culzean estate of the Marquis of Ailsa, in Ayrshire. From thence he went to the Abernethy district of the Seafield estates on Speyside, later being appointed forester to the Marquis of Drogheda, County Kildare, and subsequently took up a similar position to the Earl of Glasgow, at Hawkhead, Paisley. His lifework, however, was on the Seafield estates, where he took up his permanent abode in 1876, and for many years acted as head forester, land steward and overseer. A very keen and skilled forester, and with some of the finest forests in this country under his charge, Mr. Ward did yeoman service to the Earls of Seafield. Under his charge, huge areas on the northern side of Balloch Hill, near Keith, were entirely afforested and many other big schemes were carried out under his direction. The exquisite sylvan beauty of this district at the present day owes much to James Ward, and it is not surprising to learn how thoroughly he gained and retained the confidence of his noble employers during the past half-century. Mr. Ward became a member of the Royal Scottish Arboricultural Society in 1867, and had been associated with the Aberdeen branch of that Society since its inception in 1906. He took a prominent part in the work at Aberdeen, and was a member of committee for the past ten years. Mr. Ward had many friends all over Scotland and Ireland who will regret to hear of his demise. Mr. Ward fulfilled his duties ably and well, and during his long sojourn in Scotland became one of the most highly esteemed members of the woodman's craft in the northern half of Scotland. He also took a warm interest in public affairs, identifying himself with all matters pertaining to the welfare of those around him and taking a prominent part in the work of public bodies. Mrs. Ward died about a year ago, and two sons and two daughters survive. The sons are rubber planters in Borneo and Siam. The funeral took place at Keith Churchyard, on Friday, the 17th inst.

ANSWERS TO CORRESPONDENTS.

Salvia splendens.—*A. H. H.* (1) Salvia splendens requires a good root-run, thus you must get your plants into larger pots; you should pot them on as they require it until they are in eight- or nine-inch pots, keeping them well fed when the pots are full of roots. At least, such is the treatment required by the type and the large-growing varieties. The dwarf forms, as represented by Harbinger and Glory of Zurich, make good specimens in six- or seven-inch pots, and come into flower much earlier. The large-growing varieties should be stopped about twice during the growing season. (2) You can lift the Camellia from outdoors and place it in a suitable-sized pot or tub. A suitable compost should consist of one half loam and one half fibrous peat and leaf-soil, with enough sand to keep it open and porous; if the loam is heavy, you can use more peat with advantage; on the other hand, a light loam will require less. Pot firmly and keep the plant in close conditions for a time until it is established.

The Japanese Cherries.—*W. T. C.* (1) Prunus sinensis pendula rosea = P. subhirtella var. rosea; Hisakura = P. serrulata var. Sekiyama; Ama-no-gawa = P. serrulata var. erecta; lutea flore pleno = P. serrulata var. grandiflora; japonica rosea plena = P. japonica var. flore roseo pleno; Shirofugen = P. serrulata var. albo-rosea. The true P. Sieboldii is very distinct, the leaves and flower stalks being hairy. It is often called Waterer's Cherry. The pale pink blossoms, fairly large and semi-double, are very freely borne on small trees. There are several forms of Siebold's Cherry. Send a specimen of your rosea superba form to Mr. C. Ingram, The Grange, Benenden, Kent, when in flower, next year. (2) The following are all included in the Malus Section of Pyrus: Pyrus arnoldiana is a hybrid, P. floribunda × P. baccata; P. aldenhamensis is a hybrid, P. floribunda × P. Niedzwetzkyana; P. Eleyi is a hybrid, P. spectabilis × Niedzwetzkyana; P. Elwangeriana, an American variety of uncertain origin; P. theifera, a Chinese species; P. toringoides, introduced from China by Mr. E. H. Wilson, was originally described as a variety of P. transitoria; P. ioensis flore pleno, The Bechtel Crab, has double, pink-violet, scented flowers. (3) Pyrus Aria var. lutescens is a white Beam with yellow-shaded foliage.

Communications Received—M.S.—R. W. G.—A. W. R.—Iris.—A. J. D.—O. B. B.—T. T., Norwich.—Wadworth.—C. C. M—G. B.—W. T.—T. E. T.—J. F.—A. E. W.—W. F.—S. R.

OHIO STATE
UNIVERSITY
JUL
LIBRARY

SUPPLEMENT PLATE: Rhododendron sphaeranthum.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No 4513

No. 2113. VOL. LXXXI. {THIRD SERIES} SATURDAY, JUNE 25, 1927. Registered as a Newspaper. (with supplement) PRICE 6d. POST FREE 7d.

SUBSCRIPTIONS—Inland or Foreign 30/- per annum, post free. *Entered at New York Post Office as second-class matter.*

Postal Address—5, Tavistock Street, Covent Garden, W.C. 2. Telegraphic Address—"Gardchron, Rand, London." Telephone—Gerrard 1543.

WHITE-FLY—THE END

The difficulties experienced with this pest definitely ended with the coming of XL ALL White-Fly Vapour. XL ALL simply eradicates them, and there is no way easier. Of all nurserymen, seedsmen and florists.

XL ALL WHITE-FLY VAPOUR.

G. H. RICHARDS LTD.
234, Borough High St., London, S.E. 1.

CALDWELL'S Bedding Plants, including newest varieties of Dahlias and Chrysanthemums. New list now ready and will be sent free on application to CALDWELL & SONS, Nurserymen and Seedsmen, Knutsford.

DOBBIE'S Plant Catalogue and List of Seeds for summer and autumn sowing now ready. Free to all readers. Please mention *Gardeners' Chronicle* when writing.—DOBBIE & CO., LTD., Edinburgh.

EXHAUSTED Lawns will be improved by using Summer Grass Food now. Particulars and booklets post free.—JAMES MACDONALD, Harpenden.

WATERERS' Gold Medal Rhododendrons and Azaleas, Rare Hardy Shrubs, Alpine and Perennial Plants, Vegetable and Flower Seeds, Dahlias and Bedding Plants. Catalogues free.
JOHN WATERER, SONS AND CRISP, LIMITED, Twyford (Berks.), Bagshot (Surrey) and London.

LAXTON'S STRAWBERRIES.—New List containing Novelties for 1927. Duchess of York, The Duke, King George V, Royal Sovereign, and all the old favourites. Plants in small pots for forcing. LAXTON BROTHERS, Nurseries, Bedford.

BUNYARD'S STRAWBERRIES.

OUR Strawberry Catalogue is now ready, and will be sent by return of post, with pleasure, to any interested.—GEO. BUNYARD & CO., LTD., The Royal Nurseries, Maidstone.

BARR'S SEEDS FOR JULY SOWING.

HARDY PERENNIALS and Alpines for the Flower and Rock Garden, and the most suitable Vegetable Seeds for summer sowing. Finest selected strains and tested growth. Special lists free.—
BARR & SONS, 11, 12, 13, King Street,
Covent Garden, London, W.C.2.

A BRILLIANT STRAIN

DICKSON & ROBINSON'S GREENHOUSE CALCEOLARIA is a brilliant strain. The "slippers" are large, of good substance, borne in profusion, variously and beautifully blotched and striped, the colours rich and velvety, the habit of the plant compact. Packets of seed, 1/6, 2/6 and 3/6 each.

DICKSON & ROBINSON,
The King's Seedsmen, MANCHESTER.

PEEDS' SEEDS

Aquilegias.
Anchusas.
Aubrietias.
Campanulas.
Canterbury Bells.
Cheiranthus.
Daisies (Bellis).
Delphiniums.
Foxgloves.
Geum.
Gypsophila.
Heuchera.
Hollyhocks.
Lupins.
Myosotis.
Polyanthus.
Primroses.
Pansies.
Poppies.
Pyrethrums.
Sweet Williams.
Verbascums.
Violas.
Wallflowers.

Leading varieties of above, 1/- and 1/6 per packet.

JOHN PEED & SON
The King's Seedsmen and Nurserymen West Norwood London

BEAUTIFUL HERBACEOUS BORDERS
are supplied by
KELWAY & SON,
The Royal Nurseries, Langport.

Ask for an estimate for a Kelway Colour Border, giving the dimensions and soil, etc.

BRITISH GOODS. BRITISH FIRM.

HUMEA ELEGANS (The Incense Plant), young plants for growing on, 10/6 doz. Strong ditto, to flower this season, 37/6 per dozen, carriage paid on dozen lots for cash.—STUART, LOW & CO., Bush Hill Park, Enfield.

WM. DUNCAN TUCKER and Sons, Ltd., Lawrence Road, South Tottenham, N. 15, Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc.

SANDERS, ORCHID GROWERS,
St. Albans.

SUTTON'S SEEDS

FOR SUMMER AND AUTUMN SOWING.

Flower Seeds.
Vegetable Seeds.
Grass Seeds.

Complete Descriptive Lists Post Free.

SUTTON & SONS,
The King's Seedsmen, READING.

SEND FOR
WEBBS' LIST OF SEEDS

for Summer and Autumn Sowing. All the choicest and best strains. Flower Seeds from 3d. packet. Vegetable Seeds from 4d. packet. Also list of Webbs' Garden Fertilisers—Post Free.

WEBB & SONS LTD.
The King's Seedsmen, STOURBRIDGE.

HARDY PHLOXES.

IN all the new and most brilliant shades of colour. List now ready.

GUNN & SONS, Olton, Warwickshire.

PERPETUAL-FLOWERING CARNATIONS for the Greenhouse and the Garden; Catalogue free on application.—C. ENGELMANN, LTD., Carnation Growers, Saffron Walden, Essex.

SOW NOW.—Bath's Empress Pansies, as grown for the Royal Gardens at Frogmore. The richest and largest-flowering strain of Pansies extant. Per pkt., 1/-, 1/6 and 2/6.—R. H. BATH, LTD. (Dept. A.), The Floral Farms, Wisbech.

HARDY WATER LILIES. V. N. GAUNTLETT & CO., LTD., Japanese Nurseries, Chiddingfold, Surrey.

SALES BY AUCTION.

WEDNESDAY NEXT, JUNE 29th.

MESSRS. PROTHEROE & MORRIS
will sell by Auction at their
SALE ROOMS,
67 & 68, CHEAPSIDE, LONDON, E.C.2,
Consignments of
PALMS, BAY TREES, ARAUCARIAS, ASPIDISTRAS
and other decorative plants from Belgium,
On Wednesday next, June 29th.
Catalogues on Application.

BUSINESSES FOR SALE.

A WELL-KEPT Freehold Nursery in fast rising district, near Southend-on-Sea, comprising 1½ acres valuable Land with nice Bungalow of 5 rooms, Garage and Outbuildings; also 700ft. run of glass and 120ft. of frames. Excellent local trade. Price, £2,000.—Apply, AUBREY & CO., 96, Newgate Street, London, E.C.1.

A COMPACT Freehold Nursery in nice district, Surrey, comprising ¾-acre, comfortable Dwelling-house and 4 good glasshouses. Excellent local trade. Net Profits last year £280. Price complete with Stock, £1,850.—Apply, AUBREY & CO., above.

BOTTESFORD, NOTTINGHAMSHIRE.

7 miles from Grantham, 14 miles from Nottingham.

For Sale by Private Treaty as a going concern.

A VALUABLE Freehold Market Garden, of 6 acres, together with 16 span-roof Greenhouses, each 150ft. long, and from 10 to 15ft. wide, all heated with four-inch pipes, and well stocked. There are also a lean-to forcing house, lean-to greenhouse, 220ft. by 10ft., packing houses, etc., and a well-built brick and slated Residence of 3 reception rooms, kitchen, 5 bedrooms, etc. The sale is in consequence of the death of the owner, and affords an opportunity seldom to be met with of acquiring as a going concern the goodwill of a successful business with immediate possession.—To view, apply on the property, and for further particulars to ESCRITT & BARRELL, Elmer House, Grantham.

FOR disposal, Lease of desirable small Nursery, well stocked, going concern, convenient to town; Cottage included. Price £300.—Apply, LEASE, Box 38, 5, Tavistock Street, Covent Garden, W.C.2.

PARTNERSHIPS.

WORKING PARTNER wanted, with capital, £350, half-share for Nursery, Greenhouse and Outdoor Gardening.—Write, 129, Beulah Road, Thornton Heath.

TO Nurserymen and Market Gardeners.—Business Man, considerable experience crop and fruit growing, wants job, view partnership in well established business. Willing work any capacity.—L. B. H., Box 32, 5, Tavistock Street, Covent Garden, W.C.2.

NOTICE.

WANTED, address of sales agent for Roses. Boxwood shrubs, etc., from Holland; market or otherwise.—HOLLAND, Box 42, 5, Tavistock Street, Covent Garden, W.C.2.

TENDERS.

LOAM.

THE Commissioners of His Majesty's Works, etc., are prepared to receive Tenders before 11 a.m., on Thursday, 7th July, 1927, for the Supply and Delivery to the General Parks, London, of fibrous yellow loam. A copy of the conditions and Form of Contract and Forms for Tender may be obtained from the CONTRACTS BRANCH, H.M. Office of Works, King Charles Street, London, S.W.1.

GLAZING and Painting.—New block of greenhouses near Hockley, work to commence end August. Price wanted.—SPENCER, Norfolk Road Nurseries, Maidenhead.

EXHIBITIONS.

ROYAL WELSH
AGRICULTURAL SHOW AT SWANSEA

JULY 29th to AUGUST 2nd

Extensive Open and District Classification for Plants, Cut Flowers, Table Decorations, Fruit, and Vegetables.

Liberal Cash Prizes. **Entries close July 9th.**

Schedules from The Secretary,
CAPT T. A. HOWSON,
Little Wind Street, Swansea.

LEEDS FLOWER SHOW
Roundhay Park, Leeds

JULY 12 and 13

Over 14,000 persons visited the Show last year

Attractive Classes for Roses, Sweet Peas, Carnations, Rock Gardens & Herbaceous Plants with increased value in Prizes.

Entries Close July 7.

For Schedules apply—Secretary (Room No. 12), 8, York Place, Leeds.

WOLVERHAMPTON FLORAL FÊTE
July 12th, 13th and 14th, 1927

£1,000 IN PRIZES

ENTRIES CLOSE 4th JULY

Schedules on application to the Secretary
46, Queen Street, Wolverhampton.

PLANTS, &c., FOR SALE.

Small Classified Advertisements. Twenty words (or three lines including headline) **4s.**, *and* **1s.** *for every succeeding eight words (or line or part of a line). Double rates for front cover. Fee for having replies addressed to this office,* **1s.** *over and above the amount payable for* **all** *words appearing in the advertisement, including* **our own address.** *Displayed advertisements,* **8s.** *per inch, or* **10s.** *facing editorial matter.*

PALMS, Phoenix Canariensis, Chamerops Excelsa, Kentia Forsteriana, Cocos Flexuosa, and Phoenix Roebelinii. New Price List now out. Also a quantity of Dracaenas, Indivisa, Veitchii and Bruanti, to offer in all sizes. Fine lot of stuff.—For price list, apply, ROBERT GREEN (1911) LTD., 28, Crawford Street, London, W.1.

FERNS! CALADIUMS!!—Begonias, Palms, Crotons, Dracaenas, Gloxinias, Geraniums, Ericas Ferns and How to Grow Them, by J. E. SMITH, 3/6, post free.—SMITH, London Fern Nurseries, London, S.W.9.

FUCHSIAS, Ivy Geraniums, Verbenas, Hydrangeas, pink, white and blue Heliotropes, Rockery Ferns in pots. Catalogue free.—SMITH, Fernery, London, S.W.9.

CHINESE, Himalayan and other Rhododendrons, on their own roots. Rare Shrubs, Alpines, Herbaceous Plants, Aquatics, Lilies. Write for Catalogue.—G. REUTHE, Keston, Kent.

RARE Primula and Alpine Seeds. — 2,000 varieties; Lists free. — Rev. F. J. ANDERSON, Glen Hall, Leicester.

MESEMBRYANTHEMUM, Conophtyum, Glottiphyllum and Lithops, 6/- per doz, post free.—E. TAYLOR, 56, Edward Street, Southborough, Tunbridge Wells.

TIME is saved by sowing seeds as soon as ripe. These are now ready, Anemone obtusiloba patula: fulgens, pulsatilla, p. Farreri, p. Dykes, p. Mallenderi, rubra, Helleborus orientalis, very choice strain, corsicus, lividus, Erodium chrysanthum, Papaver alpinum, Crocus minimus, Ourisia macrophylla, Iris histrioides. Packets 1/- each; profits for Church work.—A. C. BARTHOLOMEW, Tilehurst Road, Reading.

BEGONIAS, Gloire de Lorraine, Agathea, Turnford Hall, 3/6 dozen, 24/- 100; Mrs. Peterson, 4/- dozen, 30/- 100; The King, 4/6 dozen. All rooted cuttings ready now.—THE DORSET NURSERIES, Blandford.

NOW IS THE TIME to repair and make your Hedges.—Privet ovalifolium, evergreens, broad, leaved Privet, 1-2ft., 4/- per dozen, 18/- per 100; 2 to 3 ft., 5/- per dozen, 25/- per 100; 3 to 4 ft., 7/- per dozen, 30/- per 100.—H. PRINS, F.R.H.S., Nurseryman, Wisbech, Cambs.

MAKE YOUR OWN Asparagus and Seakale Beds.—Asparagus Connover's Colossal, extra strong crowns, special selected for forcing, 2 years old, 15/- per 100, 3/- per dozen; Extra selected, one year old, 10/- per 100, 2/- per dozen. Seakale, extra strong clumps, specially selected for early forcing, 3/- per dozen, 20/- per 100. Seakale, magnificent strong roots, 2/6 per dozen. 17/- per 100.—H. PRINS, F.R.H.S., Nurseryman, Wisbech, Cambs.

PLANTS WANTED.

WANTED, 150 Lilium candidum Bulbs for late August delivery; quote price, to H. WHEELER, Avening Court Gardens, Glos.

WANTED, large Hydrangeas, Agapanthus and Oleanders.—Particulars to BALDWIN, Bretton Park Gardens, Wakefield, Yorks.

WANTED, 4 large Agapanthus in Tubs or Pots. State price and particulars.—KENT & BRYDON, Darlington.

MISCELLANEOUS.

IRON AND WIRE FENCING for Gardens, Ornamental Iron and Wire Work of every description. Catalogue G.C. 156; Iron Fencing and Tree Guards, Catalogue G.C. 65; Wood and Iron Gates, Catalogue G.C. 163; Kennel Railing, Catalogue G.C. 86; Poultry Fencing, Catalogue G.C. 70. Ask for separate lists.—BOULTON & PAUL, LTD., Norwich.

BARDSLEY'S Barrows are sent carriage paid your nearest station. Garden "The Cavendish," 29/6; "The Frinton," 47/6; No. 196, Navvy, 22/6. Ironcrete Garden Rollers, weight 2 cwt., 16 in., 84/-.—BARDSLEYS (BARROWS), COLCHESTER (Dept. G.C.), Phone 670.

GRAVEL FOR PATHS.

WE can load the famous Farnham Red Grave for paths, from our own pits, on rail, Farnham Station, at 8/6 per ton.—S. BIDE & SONS, LTD., Farnham, Surrey.

KETTERING LOAM, best colour and fibre 2/6 2-cwt., sample bags, carriage forward.—NORTHANTS LOAM COY., 18, Horsemarket, Kettering.

PEAT MOULD, for Rhododendrons and Nursery-work, 5/- bag, 25/- ton, in trucks on rail.—WALKER, Pinewoods, Church Hill, Camberley.

FINEST PEAT in England. — New Hants cutting, very fibrous; truck loads quoted. Trial bags Leaf-mould, Loam, Sand or Peat, 4/- each; B. Slag, 6/6; Super., 9/-.—HERBERT SHEA, Soil Expert, Romford.

FEED YOUR FLOWERS *with*

FISONS'

FERTILIZERS

SOLD DIRECT TO THE PUBLIC—CARRIAGE PAID

Herbaceous borders, in common with Roses, Chrysanthemums, Delphiniums and Asters, etc., respond very readily to Fisons'

CANARY GUANO

a scientifically compounded and perfectly blended General Garden Fertilizer. 7 lbs. 3/6; 14 lbs. 6/6; 28 lbs. 10/-; 56 lbs. 17/6; 1 cwt. 32/-. Carriage paid.

To maintain turf in the best condition throughout the summer, Lawns should be fed with Fisons'

LAWN GUANO

as used by many of the leading Tennis Clubs. 7 lbs. 4/-; 14 lbs. 7/-; 28 lbs. 11/-; 56 lbs. 18/-; 1 cwt. 33/-. Carriage paid.

The most nourishing and economical food for use in the Vegetable Garden is Fisons'

CHAMPION FERTILIZER

7 lbs. 3/-; 14 lbs. 5/-; 28 lbs. 8/6; 56 lbs. 15/-; 1 cwt. 26/-. Carriage paid.

Write for FREE Illustrated Catalogue

JOSEPH FISON & Co. Ltd.
IPSWICH.

Fertilizer Manufacturer to H.M. The King

2 ft 5" High.

ORIGINAL FIGURES *by*

GAZES *of* 'THE GAZEWAY'
Surbiton

Write for INTERESTING BOOKLET

For Green Fly

AND OTHER ORCHARD AND GARDEN PESTS

There is no remedy as good as

KATAKILLA

THE PERFECT NON-POISONOUS INSECTICIDE.

In Powder Form ready for mixing with water.

2/- Cartons (to make 10 galls. wash.)
6/- „ („ 50 „)

OF ALL AGENTS.

COOPER,
McDOUGALL
&
ROBERTSON, Ltd.,
Berkhamsted.

J 7570/2878

BENTLEY'S

WEED DESTROYER

(POISON)

Has ranked first for nearly fifty years.

Stronger than any other. One application keeps gravel paths and drives clean for nearly two years.

Commands the largest sale both at home and abroad, with a rapidly-spreading popularity.

Concentrated Liquid (1 to 80)

3 galls., 19/-; 6 galls., 36/-; 12 galls., 69/-; 24 galls., 126/-; 40 galls., 200/-.

(Powder 1 to 25).

6 tins, 13/9; 8 tins, 18/-; 12 tins, 25/6; 20 tins, 40/9; 40 tins, 78/-.

BENTLEY'S

QUASSIA EXTRACT

(Compound Liquid)

(NON-POISONOUS)

Infallibly destroys Aphis in all its forms. It may be used anywhere and everywhere with absolute safety, and is the most economical of all Insecticides.

One gallon makes from 80 to 100 gallons of wash.

5 galls., 8/6 per gall; 1 gall., 8/9; ½-gall., 5/-; 1 quart, 3/-; 1 pint, 1/9.

Carriage paid on 15/- orders and upwards.

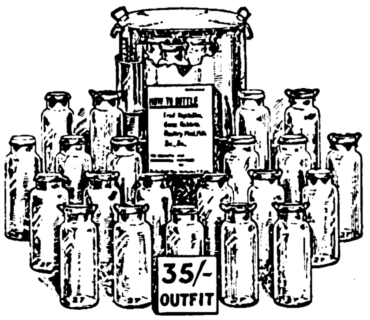
Sole Manufacturers:

JOSEPH BENTLEY LIMITED
Chemical Works
Barrow-on-Humber, Lincs.

FOWLER'S FRUIT, VEGETABLE AND GAME BOTTLING OUTFITS

35/- OUTFIT — Patent 8-bottle Sterilizer, Book of Directions, Thermometer, 24 Bottles, Bottle Brush, etc.

55/- OUTFIT — Patent 12-bottle Sterilizer, Book of Directions, Thermometer, 48 Bottles, Bottle Brush, Packing Spoon, etc.



75/- OUTFIT—12-bottle Sterilizer, Book of Directions, Thermometer, 78 Bottles, Bottle Brush, Packing Spoon, etc.

Fowler's Improved Patent Sterilizers (without bottles)

Rounds ..	22/6	26/-
Bottle capacity	8	12
Ovals	30/-	35/-
Bottle capacity	12	18

Complete with Book and Thermometer

We supply **Rubber Rings** (round and flat), **Metal** and **Glass Covers** and **Screw Bands** for all kinds of Preserving Bottles.

Please send for Price List of Bottling Appliances and mention this paper.

Manufacturers:

GEO. FOWLER, LEE & CO. LTD.
72 QUEEN'S ROAD, READING.

EUREKA WEED KILLER

LABOUR SAVERS. "EUREKA" LAWN SAND, SOILFUME, NICOTINE, INSECTICIDES, FUMERS, SPRAYS AND OTHER CHEMICALS AND SUNDRIES. SEE LIST. PLEASE ASK YOUR AGENT FOR THE EUREKA ARTICLES—THEY ARE ALWAYS SATISFACTORY. IF ANY DIFFICULTY IN OBTAINING, WE SEND DIRECT. CARRIAGE PAID

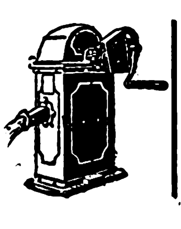
Only Address: TOMLINSON & HAYWARD Ltd LINCOLN

A CLEVER INVENTION FOR RAISING WELL WATER

The Boulton Water Elevator lifts a continuous stream of water from wells of any depth. No pipes no valves or suckers—cannot freeze. Can be fixed within an hour without skilled labour. Thousands in daily use.

Write for Catalogue No. 756.

Boulton & Paul, Ltd. Norwich.



REPUTATION

is not gained without continued good service and effect. Especially is this true about a weed-killer. Eureka does kill weeds, it has the largest sale and when using it you are certain of satisfactory results, it is full strength and never varies.

FREE TIN AS MEASURE
LARGEST SALE
"Eureka"
WEED KILLER
REGISTERED
CONTENTS OF THIS TIN MIXED WITH 25 GALLONS OF WATER MAKES SUFFICIENT DRESSING FOR 100 SQ.YDS OF PATH &c.

Eureka

WEED KILLER

Chemists, Seedsmen, Boots, Civil Service, Harrods, etc. Any difficulty in procuring, write Tomlinson and Hayward Ltd., Lincoln. "Chemistry in Garden and Greenhouse" free.

TURF LOAM *for* VINE BORDERS, CARNATIONS, ROSES, MELONS, CHRYSANTHEMUMS, FRUITS UNDER GLASS, Etc.

Very Fibrous Yellow Turf Loam

Quotations Carriage Paid to any Station or delivered by own lorry.

A. B. JOHNSTON, New Park, CRANLEIGH, Surrey

1 cwt. of ADCO

Turn your garden refuse into SYNTHETIC FARMYARD MANURE

ADCO ACCELERATOR

(for lawn mowings and soft green refuse).

28 lb., 4/6 56 lb., 8/- 1 cwt., 15/-

STANDARD ADCO

(for all other garden rubbish and straw)

28 lb., 6/- 56 lb., 11/6 1 cwt., 20/-

Carriage paid to nearest Goods Station.

Cash with order.

Stocked by all the leading Seedsmen, Stores, etc. See that you obtain Adco in our branded bags which contain full directions for use.

ADCO, LTD.,
60 Harpenden, HERTS.

3 tons of MANURE

HEDGE CLIPPING

made easy with the

"LITTLE WONDER"

A practical machine that will clip any variety and shape of hedge five to ten times as fast as the hand shears. It will do better work and make finer hedges with much less effort. Ten feet high hedges may be clipped right from the ground. Easily adjusted for top-cutting.

Strong, durable, efficient—a perfectly made and finished labour-saving machine that saves you money every time it trims a hedge.

The "LITTLE WONDER" Hedge Clipper has been used at the Royal Horticultural Society's Gardens at Wisley since 1924, and holds

THE AWARD OF MERIT BY THE R.H.S.

Used in the Royal Zoological Society's Gardens and many large estates throughout the country.

Demonstrations arranged.

Send for illustrated booklet with prices or ask your dealer. (Free of duty for Ireland).

JOH. HANSEN

Astor House, 91, Aldwych, London, W.C. 2

Have a good one!

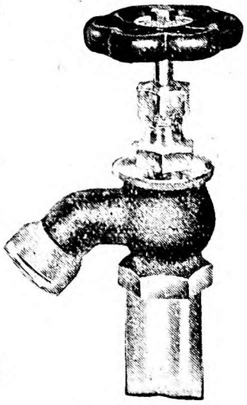
For a good garden have a good tap that never leaks, is frost proof, gives the same flow of water as from an open pipe, and saves the gardener time and labour in watering.

THE INDESTRUCTIBLE FULLWAY

NORWICH VALVE

has a straight or bent Nose for push-on, screwed or half-a-turn instant hose coupler similar to a fire cock.

Solidly made in brass, with metal hand wheel. This pattern for instant hose coupler ¾" 7/- post paid.
Coupler 1/9
From Stock.



List C 19 post free.

C. P. KINNELL & Co. Ltd.
SOUTHWARK STREET——LONDON SE 1

CIRENGOL

KILLS GREEN FLY

AND OTHER GARDEN PESTS.

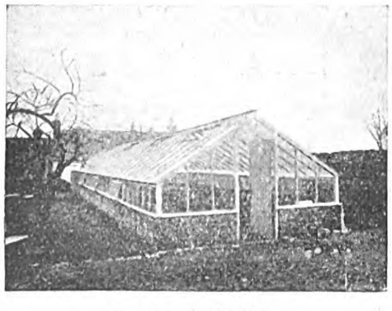
READY FOR USE. All you have to do is to mix a level teaspoonful in two gallons of cold water and in a few minutes you have a supply of strong syringing liquor.

9d. per tube.

Large size 3/- (5 times the 9d. size.)

Of all Ironmongers, Seedsmen, Florists and Chemists or post free from :

THOS. CHRISTY & CO., 4-12, Old Swan Lane. London, E.C. 4.



Erected at Moffat.

DAVID SWAIN & CO.

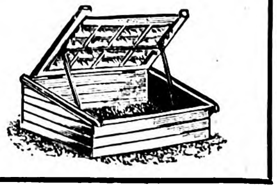
Horticultural Builders

101 SUSSEX RD., HOLLOWAY, N. 7

Phone North 2807.

GARDEN FRAMES
GREENHOUSES
HEATING

RENOVATIONS of
HORTICULTURAL
BUILDINGS



TROPAEOLUM SPECIOSUM

(Scotch Flame Flower) Exquisite climber, delicate apple-green foliage and blinding scarlet blossoms Established roots out of pots. 6 for 3/9, 12 for 7/6. Carriage paid.

CLARENCE ELLIOTT, LTD.,
Six Hills Nursery, Stevenage, Herts.

GOOD-BYE! IT'S AUTO-SHREDS I'M OFF

"Simply Light and walk away"

The Original Fumigating Shreds. Refuse Substitutes they are never the same.

No. 1 Fumigates 18/20,000 Cubic Feet 6/-
No. 2 Do. 10,000 Do. 4/6
No. 3 Do. 1,000 Do. 1/-
No. 4 Do. 2,500 Do. 1/9

Whole or part packet can be used as desired. From all Reputable Seedsmen

Sole Manufacturers:—
W. DARLINGTON & SONS LTD.
HACKNEY —— LONDON, E.8

EDDY'S NEW NETS

GARDEN NETS

For Fruit protection. Any lengths and widths. Corded all round—

NEW—1" sq. mesh, heavy,	6½d.	sq. yd.
NEW—1" sq. mesh, medium,	5½d.	,,
NEW—1" sq. mesh, light	5d.	,,
NEW—⅝" sq. mesh, medium	7½d.	,,
NEW—⅝" sq. mesh, light	5d.	,,
REPAIRED—	special offer	
1" sq. mesh (corded)	3½d.	sq. yd.
1" dia. mesh (not corded)	9/-	100 sq. yd.

NEW TENNIS BOUNDARY NETS

Any lengths and widths. Corded all round 6½d. per sq. yard

NEW TENNIS NETS

Various qualities, from 15/3 to 38/- each.

NETS FOR ALL PURPOSES

Samples and particulars from the manfrs.:

JOSEPH BENTLEY LIMITED
Barrow-on-Humber —— Lincs.
(Sole proprietors of B. Eddy & Sons)

TENNIS GARDEN AND POULTRY NETTING

BROWN'S PURCHASE OF DEALER'S STOCK.
Heavy Waterproof Tanned Cord Quality.

30 yds. × 1 yd., 2/9; by 2, 5/6; by 3, 8/3; by 4, 11/-; by 6, 16/6; 50 yds. × 1 yd., 4/6; by 2, 9/-; by 3, 13/6; by 4, 18/-; by 6, 27/-. Nets lined top and bottom, 1d. yd. extra, i.e., 50 × 3 yds., 4/2.

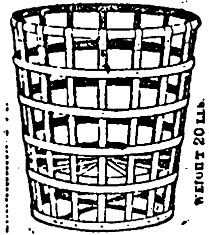
Cheaper Quality for Garden Use: 30 × 1, 2/-; 30 × 2, 4/-; 30 × 3, 6/-. Bush Netitng, 7lbs., 2/6.

Take early advantage. Orders per return carriage paid.

H. BROWN & SONS, Brown St. Blackburn.

VULCAN GARDEN

REFUSE INCINERATOR



Garden and Household refuse reduced to ashes quickly, cleanly with minimum amount of smoke. Will take a barrow load of rubbish at a charge.

British Manufacture.

PRICE EACH 10/-

Carriage paid nearest Railway Station. 2 for 18/-

Larger size 2 for 22/6 **12/6**

"The Incinerator arrived on Wednesday, and after two soaking nights I had no difficulty in getting a good fire from exposed material. I burnt up in an hour what would have taken me all day with a bonfire."

LOSTOCK IRON BASKET WORKS
Dept. 5, Rudheath Road, Northwich, Cheshire.

ORCHIDS.

THE LARGEST RAISERS
GROWERS & EXPORTERS

CHARLESWORTH & CO. LTD.
HAYWARDS HEATH, SUSSEX.

WILLIS BROS.'

Garden Fertiliser

THE BEST ON THE MARKET.

NO STABLE MANURE REQUIRED.

For digging in or as a top-dressing. For kitchen Gardens or Herbaceous Borders.

1 cwt., 15/-; ½-cwt., 8/-; 28lb., 5/-; £14 10/- per ton. All Carriage Paid.

UNIVERSAL SOLUBLE MANURE.

FOR FRUIT AND PLANTS.

Used in the Public Parks and Gardens for flower beds, etc. A scientific combination of all the valuable manurial agents best suited to plant life. The best Concentrated, All-round Manure in use.

1 cwt., 25/-; ½-cwt., 13/-; Carriage Paid.

QUASSIA COMPOUND.

Liquid Quassia Extract, etc., the cheapest reliable Insecticide known. Mixes instantly with water, and leaves no deposit. May be used with perfect safety. 1 gal., 7/6; 5 gals., 35/-; 10 gals., 65/-; carriage paid. 1 gallon makes 40 gallons with water.

NICOTINE INSECTICIDE.

"Highly Concentrated." Full directions sent with each package. A good spring dressing for fruit trees, and for general use under glass. Soluble in water. 1 gal., 15/-; ½-gal., 8/-; 5 gals., 70/-; carriage paid.

NETS! NETS!! NETS!!!

Best Heavy Tanned Garden Nets, 1" mesh. For Strawberry Beds etc. 8 × 25 yds, 27/6; 50 × 4 yds., 27/6. Carriage Paid.

New Netting, 1", ¾" or ½" square mesh. Carriage Paid Samples and Prices on application.

Tarred Tennis Stop Netting, prices on application.

Melon Nets, 12 × 12, 3/6 per dozen.

GREENHOUSE BLINDS.

Made up to any size from special quality white shading material. Bound all round and down centre for strength with stout webbing, ready to fix; or complete with Rollers and Fittings at small extra cost.

Estimates and samples on application.

GARDEN SUPPLIES AT LOWEST PRICES

Write for our List of Garden Manures and Horticultural Sundries. Free on application.

WILLIS Bros. (HARPENDEN) Ltd.
HARPENDEN, HERTS.

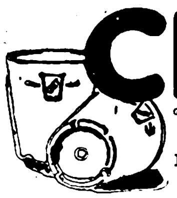
ALLEN'S NETTINGS Reduced Prices

Garden Nets for Fruit Protection
Any length width corded all round

Reliable Nettings at wholesale prices, being the actual manufacturers of our new Nettings, we are able to offer our guaranteed qualities at first cost, showing a substantial saving New 1in. sq. mesh, stout, 5d. per sq. yd.; new medium 1in. sq. mesh, 4½d.; new ¾in., stout, 5½d.; new ¾in. medium sq. mesh, 4½d.; best ¾in. Salmon Twine sq. mesh, 6½d.; repaired 1in. sq. mesh, 2½d.; repaired super quality ¾in, 3d.; new Tennis Boundary Netting, roped around heavy hand braided, 6½d.; medium, 6d.; little lighter, 4d. sq. yd.; Selected Repaired, 2½d. Any length width supplied. Lawn Tennis Nets regulation size, various qualities, steel and copper head lines from 27/6 to 32/6 each nearly new. ¾in. Diamond Nets, measured mesh closed, best obtainable, 25 × 13yds, 34/-; 3 Nets, 101/-; 50 × 13 yds., 68/-, 3 Nets, £10 3s. 0d.; 75 × 13yds., 102/-, 3 Nets, £15 15s. 0d. 1in. 25 × 2yds., 3/6 or 4yds., 7/-, or 8yds., 14/-; Heavy Quality, 25 × 2 yds, 4/6; or 4yds, 8/3; of 8 yds., 16/-. New Pea Netting, 5in., 3ft., 2½d.; 6ft., 5d. All carriage paid passenger train receipt order. Satisfaction guaranteed.

Samples and full particulars from the Manufacturers.

W. OLIVER ALLEN & SONS
Net Makers, PORTHLEVEN, CORNWALL.



CRETS

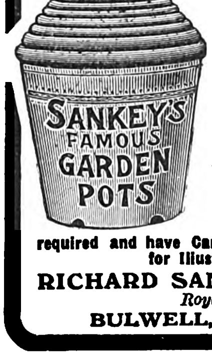
The Pots that Drain

PETER BAILEY & SONS, Ltd.
Heaton Mersey Pottery
Nr. Manchester.

PARSONS
Horticultural Builder.
21, OXFORD RD.
READING.

Largest Manufacturers of Flower Pots in the World.

By Appointment



THE BEST AND CHEAPEST

SPECIAL POTS for Roses, Vines, Clematis, Orchids, and Chrysanthemums.

Fancy Fern Pans and Bulb Bowls, from 3d. each.

No Waiting!

All Orders executed the same day as received.

State quantity of each size required and have Carriage Paid quotation, or write for Illustrated Price List.

RICHARD SANKEY & SON, LTD.
Royal Potteries,
BULWELL, NOTTINGHAM.

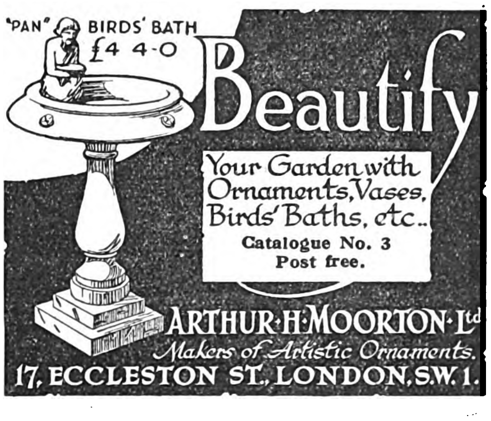
ORCHIDS.

Clean, well grown and cheap; also Many Rare and Choice Varieties

STOVE AND GREENHOUSE PLANTS OF ALL KINDS

Kindly send for Catalogue.

JAMES CYPHER & SONS
Exotic Nurseries, CHELTENHAM.


"PAN" BIRDS' BATH £4 4-0
Beautify
Your Garden with Ornaments, Vases, Birds' Baths, etc..

Catalogue No. 3
Post free.

ARTHUR H. MOORTON Ltd
Makers of Artistic Ornaments.
17, ECCLESTON ST., LONDON, S.W.1.

NICOTINE INSECTICIDES

Are by far the most efficient and economical for destroying sucking insects in Greenhouse, Orchard, or Garden. I pack in pure Nicotine 95-98%, Nico-Soap (Nicotine and Soft Soap) and Fumigating forms.

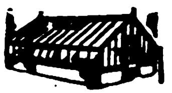
CAMPBELL'S PATENT SULPHUR VAPORISER

For vaporising Sulphur. The best method of destroying Mildew on Roses, Vines, etc., in Glasshouses.

Full particulars from:

J. D. CAMPBELL, Nicotine Manufacturer,
7, Lund St., Cornbrook, Manchester

ILLUSTRATED LIST (56 pages) POST FREE



Greenhouses from £4 2 6

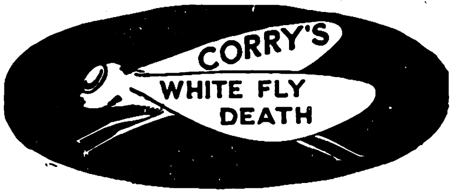
Poultry Houses from £1 17 6

Huts from £3 2 6

Bungalows, Garages, Rustic Houses and Poultry Appliances of every description.

T. BATH & CO., Ltd., Savoy St., London, W.C.

THE LEADING GLASSHOUSE FUMIGANT



THOUSANDS OF TOMATO PLANTS ENTIRELY SAVED

Be satisfied with the best—the cheapest in the end. Commended by the Royal Horticultural Society.

Cubic ft. 1,000 2,000 4,000 8,000 16,000 32,000 64,000
10d. 1/3 2/- 3/6 6/- 10/6 19/-

Also in 2, 5 and 10 gallon free drums.

WEED-DEATH NON POISONOUS POWDER WEED KILLER

Non-caustic; no smell; kills the roots; superior to arsenical compounds.

Tins—
1/- 2/- 3/6 6/6 12/- 27/6
for 4 12½ 25 50 100 250 gals.

Special cheap bulk prices for Parks, Recreation Grounds, etc.

CORRY'S

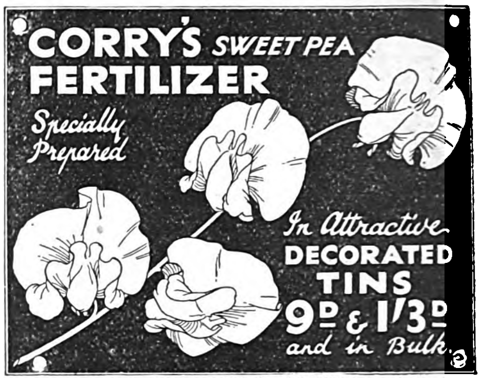
WOODLICE and ANT DEATH

NON-POISONOUS.

Simply requires sprinkling.

Causes instantaneous death to Ants, Woodlice, Earwigs, Snails, and kills or brings Mice, Rats and Rabbits from their holes.

Prices—
1/- 1/9 3/- 5/- 9/-



SOLD BY ALL NURSERYMEN, SEEDSMEN AND FLORISTS.

Manufactured by CORRY & CO., LTD., SHAD THAMES, LONDON, S.E. 1

COWAN & CO.

ORCHID GROWERS AND EXPORTERS

OLD SOUTHGATE, LONDON, N. 14

Station—Palmers Green. *Telephone*—Palmers Green 0059.
Telegrams and Cables—"Odontoglot, Winchmore, London."

DWARF BEDDING DAHLIA "COLTNESS GEM"

This most useful bedding plant is of compact and bushy habit, 15 to 18 inches in height. Flowers bright scarlet very freely produced upon strong stems 6 to 8 inches long and carried well clear of the foliage. Strong pot-grown plants ready from May.

7/6 per doz. **50/-** per 100

Special rate per 1,000 upon application.

DICKSONS NURSERIES Ltd.——Chester.

Harmless to Man & Animal

Premex

NON-POISONOUS

POWDERED WEED KILLER

1 lb. makes 12½ gallons, and covers 50 sq. yds. In tins or bulk. Send name and address of nearest dealer and free sample will be forwarded
M. HEDGES 11 Hetley Rd. London W. 12

Seedsmen Required

One of the largest foreign seed houses has several positions open to men who are thoroughly trained in both Vegetable and Flower Seeds. Their representative will arrive in London about July 15th for a period of 5 days, at which time kindly arrange for an appointment which will be held strictly confidential.

Send full particulars, stating age, experience, salary desired, etc., to:

A.M., care T. B. BROWNE, LIMITED
163 Queen Victoria Street, London, E.C. 4

CLAY'S LONDON FERTILIZER TRADE MARK

CLAY'S FERTILIZER

The Gardener's best friend

MAKES THE GARDEN GAY ALL THE YEAR ROUND

Sold everywhere in TINS at 10d. and 1/6; and in BRANDED and SEALED BAGS—7 lbs. 3/6; 14 lbs. 6/-; 28 lbs. 10/-; 56 lbs. 18/-; 112 lbs. 32/-. Or direct from the Works, Carriage Paid in the United Kingdom for Cash with Order (except TINS).

Every Genuine Tin, Bag and Seal bears the Trade Mark.

CLAY & SON, STRATFORD, LONDON, E. 15

Manure Manufacturers and Bone Crushers.

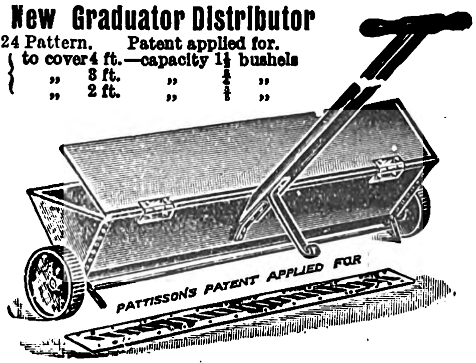
THE 'PATTISSON' HORSE (LAWN) BOOTS

Pattissons' New Graduator Distributor

Improved 1924 Pattern. Patent applied for.

Made in 3 sizes {
to cover 4 ft.—capacity 1¼ bushels
" 3 ft. " ¾ "
" 2 ft. " ⅜ "

The Simplest, Quickest, and most Effective Top Dresser. Adjustable to any powder material. No waste. Great time and labour saver. *Illustrated Price List with Testimonials from the makers:—*



"The ONLY Economical Ones."

USED in the Royal and thousands of the Principal Gardens, GOLF and CRICKET GROUNDS, and exclusively at the Oval S.C.C.C. for past 20 years. *OVER 10,000 SETS USED IN THE U.K.*

Fig. 1, for Shod Horses. Fig. 2, Welted Boot.

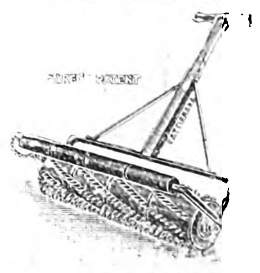
HUNDREDS OF TESTIMONIALS.

The Field says: "As good as anything that could be devised."

Mr. Wm. Hardy (Gardener to Lt.-Col. Hon. W. Guinness): "The boots supplied 17 years ago are still in use and have always been satisfactory."

SAREL'S PATENT SPIKED ROLLER.

Comm. Hillyard, R.N., The All England Lawn Tennis Club, Wimbledon, writes: "The 'Sarel' Roller is invaluable for aerating the ground. It saves an enormous amount of labour and is most beneficial to the turf. I should be very sorry to be without such a valuable implement."



H. PATTISSON & CO., STANMORE, MIDDLESEX.

MARKETS.

COVENT GARDEN, Tuesday, June 21st, 1927.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d s. d.
Adiantum cuneatum per doz. ...	10 0-12 0
—elegans ...	10 0-15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.... ...	30 0-42 0
Asparagus plumosus ...	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, doz.	12 0-18 0
—32's	24 0-30 0
—nidus ...	12 0-15 0
Cacti, per tray —12's, 15's ...	5 0--7 0
Crassulas, pink, 48's per doz.	24 0-30 0
—scarlet, 48's, per doz. ...	27 0-30 0
Crotons, doz.	30 0-45 0
Cyrtomium ...	10 0-25 0
Fuchsias, 48's, per doz. ...	15 0-18 0
Heliotropes, 48's, per doz. ...	15 0-18 0
Hydrangeas, pink, 48's, per doz.... ...	24 0-36 0
—blue, 48's, per doz.... ...	30 0-36 0
—white, 48's, per doz.... ...	24 0-30 0
—larger sizes, each ...	4 0--5 0

	s. d s. d.
Marguerites, 48's, per doz. ...	12 0-18 0
Mignonette, 48's per doz. ...	18 0-21 0
Nephrolepis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pelargoniums, 48's, per doz.	12 0-15 0
—Zonal, 48's, per doz. ...	9 0-10 0
—Ivy-leaf, 48's, per doz. ...	12 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's ...	5 0--6 0
—small ...	4 0--5 0
—72's, per tray of 15's ...	2 6--3 0
Roses, Polyanthas, 48's, per doz.... ...	18 0-24 0
—Rambler, large plants, each	5 0-15 0
Stock, white, 48's, per doz. ...	12 0-15 0
—coloured, 48's, per doz. ...	10 0-12 0
Verbenas, pink, 48's, per doz.	12 0-15 0
—scarlet, 48's, per doz. ...	15 0-18 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0-12 0
cuneatum, per doz. bun. ...	5 0--7 0
Asparagus plumosus, per bun., long trails, 6's ...	2 0--2 6
med. sprays	1 6--2 6
short ,, ...	0 9--1 3
—Sprengeri, bun. long sprays...	2 0--2 6
med. ,, ...	1 0--1 6
short ,, ...	0 6--1 9
Carnations, per doz. blooms .	2 6--3 6
Coreopsis, per doz. bun. ...	2 6--3 0
Cornflower, blue, per doz. bun.	1 6--2 0
—pink, doz. bun.	2 0--3 0
Croton leaves, per doz. ...	1 9--2 6
Daisies, white, large, doz. bun.	2 6--3 6
Delphinium, blue, per doz. bun.	6 0--9 0
Ferns, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	4 0--8 0
Myrtle, green, per doz. bun.	1 6--2 0
Stock, double white, per doz. bun. ...	8 0-15 0
Gaillardia, per doz. bun. ...	4 0--5 0
Gardenias, per doz. blooms .	9 0-10 0
Gladiolus, Blushing Bride, per doz. bun. ...	9 0-12 0
—Peach Blossom, per doz. bun.	9 0-12 0
— The Bride, per doz. bun.	10 0-15 0
— giant varieties, per doz. spikes—	
—pink shades...	3 0--4 0
—scarlet ...	3 6--4 0
—white ...	4 0--4 6
Gypsophila, white, per doz. bun.... ...	6 0--9 0
Heather, white, per doz. bun.	6 0--9 0
Hydrangeas, white, per doz. bun.... ...	36 0-42 0
—coloured, per doz. bun. ...	30 0-36 0
Iceland Poppies, per doz. bun.	2 0--2 6
Iris, Spanish, per doz. blooms—	
—blue ...	0 9--1 0
—yellow ...	1 0--1 6
—mauve ...	0 9--1 0
—white ...	1 0--1 6
Lapagerias, per doz. blooms .	4 0--5 0

	s. d. s. d.
Lilium longiflorum, long, per doz. ...	2 6--3 0
—short, doz. blooms ...	2 0--2 6
Lily-of-the-Valley, per doz. bun.	30 0-36 0
Marigolds, per doz. bun. ...	4 0--5 0
Narcissus, per doz. bunch—	
—double white	8 0--9 0
Nigella, blue, per doz. bun.	4 0--8 0
—white, per doz. bun. ...	6 0--8 0
Orchids, per doz.	
—Cattleyas ...	36 0-48 0
—Cypripediums	6 0--8 0
Paeonies. French, white, 6's, per doz. bun. ...	12 0-15 0
— — pink, per doz. bun.	9 0-12 0
Pink, white ...	2 0--4 0
Pyrethrum, per doz. bun.—	
—double white	6 0--7 0
—single red ...	3 0--3 6
Richardias, —yellow, per doz. blooms .	24 0-30 0
Roses, per doz. blooms—	
—Columbia ...	3 0--4 0
—Richmond ...	2 6--3 6
—Madame Butterfly ...	2 6--3 6
—Golden Ophelia	2 0--3 0
—Mrs. Aaron Ward ...	1 6--2 6
—Madame Abel Chatenay ...	2 0--3 0
—Hoosier Beauty	2 6--4 0
—Liberty ...	3 0--4 0
—Molly Sharman Crawford ...	2 6--3 6
—Premier ...	3 0--4 0
Smilax, per doz. trails ...	5 0--6 0
Statice sinuata, mauve, per doz. bun. ...	3 0--4 0
Scabiosa caucasica, per doz. bun.	5 0--6 0
Stephanotis, per 72 pips ...	2 6--3 0
Stock, per doz. bun.—	
—double white	6 0-12 0
— — mauve ...	12 0-18 0
— — pink ...	12 0-18 0
Sweet Peas, in variety ...	6 0-15 0
Sweet Sultans, white, per doz. bun.... ...	10 0-12 0
—mauve, per doz. bun. ...	10 0-12 0

Remarks.—Supplies of all outdoor blooms are on the increase. Scabiosa caucasica is the latest arrival. Blue and pink Cornflowers are cheaper and finer in quality. A good selection of Delphiniums is on offer, but supplies are more than sufficient for present requirements. Of Pyrethrum, the double white varieties are most saleable; coloured sorts are now very poor in quality. A larger supply of white and mauve Stocks is greatly welcomed, and their prices are much easier. White Pinks, Mrs. Sinkins and Her Majesty, have also increased in quantity during the past week. Carnations and Roses continue to arrive in fine condition, and their prices have been somewhat easier. The white Rose, Molly Sharman Crawford, is again more plentiful. The supplies of Gardenias are very limited. Giant-flowered Gladioli as well as Primulinus varieties are excellent in quality, and include various shades of pink, also some very fine spikes of scarlet and white sorts. Sweet Peas vary in price from 4/- to 18/- per dozen bunches: the finest quality blooms are soon cleared. Spanish Irises begin to show signs of finishing; a few boxes of Anglica Irises have been on offer during the past week. but the former are preferred while in fair condition. Lilium longiflorum continues to arrive in good condition. and this morning its price was unchanged. More of the white and pink L. lancifolium have been on sale. The quantities of Lily-of-the-Valley have been below requirements during the past week.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, Australian—	
—Granny Smith	22 0-26 0
—Dunn's ...	17 0-18 0
—Jonathan ...	17 0-18 0
—King David .	16 0-17 0
—Cleo... ...	17 0-18 0
—Sturmer Pippin	16 0-17 0
Apples, New Zealand—	
—Rome Beauty	17 0-18 0
—Cleo ...	16 6-17 6
—Sturmer Pippin	19 0-21 0
—London Pippin	16 0-20 0
—Premier ...	16 0-20 0
—Delicious ...	16 0-20 0
Apricots, Spanish, per crate ...	6 0--8 0
—halves ...	7 0-10 0
Bananas ...	14 0-23 0
Cherries, English, half sieve ...	14 0-16 0
Figs, per doz....	6 0-18 0
Gooseberries, per ½-sieve ...	3 6-5 0-
Grape Fruit— per case	
—Blue Goose...	30 0-40 0
Grapes, English	
—Black Hamburgh, per lb.	2 0--3 6

	s. d. s. d.
Grapes—	
—Alicante Gros	3 0--3 6
Maroc ...	3 0--3 6
—Muscats ...	4 0-10 0
—Canon Hall...	5 0-10 0
Grapes, South African, per case—	
—Almeria ...	10 0-12 0
Lemons, Messina Boxes ...	12 0-20 0
—Naples, per case	20 0-26 0
Melons, each ...	4 0--7 0
Canteloup, each... ...	5 0--8 0
Oranges, per case—	
—Valencia ...	20 0-28 0
—Cape Navel...	22 6-25 0
—Denia ...	30 0-40 0
—Murcia ...	22 0-30 0
Nectarines, doz.	8 0-21 0
Peaches, per doz.... ...	8 0-24 0
Pears, New Zealand—	
—Winter Nelis	21 0-30 0
Pines, case ...	30 0-40 0
Strawberries—	
—Southampton, 2 lb. chip ...	2 6--4 0
3 lb. chip ...	4 0--5 0
—Cornish, 3 lb. chip ...	3 0--4 0
Spanish Plums, ½-sieve ...	7 0-10 0
—crate ...	7 0--8 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus—	
—Giant ...	12 0-20 0
—Worcester, extra special	5 0--6 0
—special ...	2 0--3 6
Beans, Guernsey	0 10-1 6
Worthing Forced ...	0 10-1 9
Beets, per cwt.	5 0--6 0
Cabbage, per doz.... ...	2 0--2 6
Carrots, per ½-bag. ...	4 0--6 0
Cauliflowers—	
—English, per crate ...	6 0--8 0
Cucumbers, doz.	4 6--5 6
—Flats, 3, 3½, 4 doz.... ...	10 0-14 0
Leeks, per doz.	2 0--2 6
Lettuce, round, per doz. ...	0 9--1 6
—long	1 0--4 0
Mint, forced, per doz. ...	2 0--4 0
Marrows, forced, per doz. ...	10 0-12 0
—outdoor, per doz.... ...	3 0--6 0

	s. d. s. d.
Mushrooms—	
—cups... ...	1-6--2 6
—Broilers ...	1 0--1 6
Onions—	
Valencia ...	— 11 0
—Egyptian ...	— 13 0
Parsnips, per cwt. ...	4 0--4 6
Peas, per bushel	15 0-18 0
—French, per bag	4 0--6 0
Potatos—	
—King Edward— ton ...	...180s. 200s.
—others, ton....	120s. 150s.
Potatos, new—	
—Guernsey per cwt. ...	18 0-20 0
—St. Malo ...	16 0 18 0
—Jersey ...	18 0-20 0
Radishes, per doz.	1 0--2 0
Savoys, per tally	8 0-12 0
Tomatos, English—	
—pink ...	5 0--6 0
—pink and white	5 6--6 6
—white ...	— 5 0
—blue ...	4 6--5 0
—Canary Island	12 0-16 0
—Guernsey ...	5 6--6 0
—Dutch ...	4 0--5 0
Turnips, per cwt.	4 0--4 6

Remarks.—Trade in most sections of the market continued brisk and about normal for the season. Strawberries usually dominate the market at this time of the year, but, so far, they have not had the retarding effect on the sales of other produce as they usually do. This is probably due to the comparatively short crop from Southampton and the correspondingly high prices they are realising. Choice fruits, such as Peaches, Nectarines, Melons, Grapes and Figs are a moderately good trade with a steady price level. Apples are quoted higher and sell well at the increased prices. The importation of Cherries from France having been prohibited, English Cherries which are now being marketed should find a keen demand. Home grown Gooseberries sell badly, the competition of Dutch Gooseberries affecting their sales seriously. Apricots from Spain are slightly dearer, the quantity available being much less than a week ago. Spanish Plums also are meeting a good market. Black Currants from France are available and sell fairly well. There are also a few Black Currants from home-growers. Forced Beans are not quite so popular now that Peas are on the market. Asparagus is not finishing the season at all well and prices are very low. Mushrooms are not quite so plentiful as hitherto, and their prices are inclined to improve. New Potatos continue to be a firm trade. Tomatos are plentiful and cheap. The Cucumber trade is not good at the time of writing, and prices have a tendency to fall. Peas are in better supply, but rain is wanted badly to improve them. Salads sell fairly well, but are comparatively cheap. The green vegetable trade is moderately good.

GLASGOW.

Business in the cut flower market was quieter during the past week, and the tendency of prices was towards a lower level, except in the case of Irises, which were unchanged at 1/- to 1/3 per bunch for yellow and white 10d. to 1/3 for Imperator and 1/- for Anglica. Richmond and Mensing Roses were worth 1/- to 2/6 per dozen; Mrs. H. Stevens, 2/-, and Madame Butterfly, 2/- to 3/-. Red Gladioli realised 1/- to 1/3 (6's); Hermione, 6d. to 8d.; Prince of Wales, 1/- to 1/4; and Maiden's Blush, 10d. to 1/2. Carnations Lady Northcliffe, Margaret, Aviator and Brilliant sold for 2/- to 3/- per dozen. Anemones made 3/-. Sweet Peas, 8d. to 1/- per bunch, special 1/6 to 1/9; Paeonies, 1/6 (6's); Lilium longiflorum (Harrissii), 2/- to 3/-; Queen Mary Pyrethrum, 9d. to 1/-; single pink Pyrethrum, 9d.; and single scarlet, 6d. to 8d.

With the exception of Geraniums and Chrysanthemums, pot and bedding plants continued to be plentiful. Geraniums ranged from 18/- to 24/- per dozen; bedding, 8/- to 10/-; Fuchsias in five-inch pots made 12/- per dozen, bedding Fuchsias, 4/-; Begonias, 5/6; Hydrangeas, 9/- to 27/-; Marguerites, 9/- to 12/-; Gladioli, 4/- per box; Coltness Gem Dahlias, 2/- to 2/6 per dozen; and Chrysanthemums, 4/-.

A feature of the fruit market was the cheap price of Valencia Oranges, which ranged from 5/- to 20/- per case; Murcias were dearer at 23/- to 43/-; Sunkist realised 32/-; and South African Navel Oranges, 29/-. Grape Fruit was worth 30/- to 32/-. Prices of English Strawberries fluctuated between 1/- and 1/4 per lb. Greengages realised 14/- per crate; Apricots, 10/-; Black Currants, 15/- half bushel; Cherries, 16/-; Kelsey Plums, 17/-; Cherry Plums, 8/- to 9/-; and Gooseberries, 5/- to 7/-. Scotch Tomatos made 10d. to 1/- per lb., and Guernsey, 9d. Black Grapes realised, 2/- to 2/3 per lb.

In the vegetable section Cucumbers realised 5/- to 7/- per dozen; Scotch-grown Lettuces, 2/- to 3/- per dozen; Dutch Lettuces, 4/6 per crate (30's); Asparagus, 4/-; Carrots, 1/- per bunch; Turnips, 1/1 to 1/4; and Italian Potatos, 3/- per stone.

ENQUIRY.

I have a duck pond in which I intend to plant wild Celery as this is supposed to be good for encouraging wild duck to the pond. I have the seed, and shall be glad if any reader will tell me how to sow it and treat it before being planted in the pond. *D. L.*

CATALOGUE RECEIVED.

Foreign.

Usine du Vexin, 4, Rue Claude-Decaen, Paris and Pontoise, Seine-et-Oise.—Iron wire and construction.

SCHEDULES RECEIVED.

Sundridge and Brasted Horticultural Society.—Thirty-third annual show, to be held at Little Combe Bank, Sundridge, Sevenoaks, on Saturday, July 23.—Secretary, Mr. M. F. Bingham, Dibgate, Sundridge.

Chippenham Horticultural and Horse Society.—Annual show, to be held at Hardenhuish Park, Chippenham, on Monday, August 1. Secretary, Mr. W. Small, Market Place, Chippenham.

Harrogate Agricultural Society.—Exhibition to be held on Friday and Saturday, August 5 and 6. Secretary, Mr. Geo. Morrell, 1, Commercial Street, Harrogate.

GARDENING APPOINTMENTS.

Mr. W. New, for the past two years foreman at Bawdsey Manor, and previously for two years foreman at Shugborough Park, Stafford, as Gardener to Sir Cuthbert Quilter, Bart., at Bawdsey Manor, Woodbridge, Suffolk. (Thanks for 2/6 for R.G.O.F. Box.—Eds.)

Mr. Charles Oakford, recently gardener to Lieut.-Col. Macnabb, Mathern Palace, Chepstow, as gardener to Captain and Lady Margaret Spicer, Spye Park, Chippenham, Wiltshire. (Thanks for 2/- for R.G.O.F. Box.—Eds.).

Mr. E. G. Dunkley, for the past fifteen years General Foreman to the Earl of Dysart, Buckminster Park, Grantham, as gardener to His Lordship at the same place. (Thanks for 2/6 for R.G.O.F. Box.—Eds.).

Mr. J. Shears, for the past five-and-a-half years gardener to Major the Right Hon. G. C. Tryon, M.P., Durnford Manor, Salisbury, and previously at Rownhams House, Southampton, as gardener to Sir Frederick Preston, K.B.E., Landford Manor, Salisbury. (Thanks for 1/6 for R.G.O.F. Box.—Eds.)

Mr. W. J. Penton, for the past eleven years gardener to General Sir Arthur Paget, at Warren House, Kingston Hill, Surrey, as gardener to Carl Holmes, Esq., The Node, Welwyn, Herts.

SITUATIONS VACANT

Twenty words (or three lines, including headline), **4s.,** *and* **1s.** *for every succeeding eight words (or line or portion thereof). Fee for having replies addressed to this office,* **1s.** *over and above the amount payable for* **all** *words appearing in the advertisement, including* **our own address.**

Advertisers desiring their Advertisements repeated must give **full particulars.** *Name and address alone are insufficient.*

Gardeners writing to Advertisers of Vacant Situations are recommended to send them copies of testimonials only, retaining the originals. To part with original documents is to run a great risk of their being mislaid.

When addressing Box numbers, it is essential to give the **initials or pseudonym** *as well as the correct number of the box.*

MUNICIPAL AND PUBLIC.

THE Royal Horticultural Society invites applications for the post of SUPERINTENDENT of the Fruit and Vegetable Department in their Gardens at Wisley. Duties include cultivation of plants under glass and outdoors, and instruction of students in the department. Wages £150 and a house. Applicants should send particulars of age, experience, and two testimonials to THE DIRECTOR, R.H.S. Gardens, Wisley, Ripley, Surrey, by Monday, June 27.

PRIVATE.

WANTED, GARDENER as HEAD of two good knowledge of flower and vegetable garden.—Apply, giving particulars of experience, age and wages, without cottage, to W. H. SHARPE, Florist, Hythe, Kent.

REQUIRED, WORKING HEAD GARDENER, experienced Inside and Out, two others kept; 3-roomed cottage. Personal interview and reference essential, so must be within motoring distance.—HUME, Marchmount, Westerham.

WANTED, HEAD WORKING GARDENER where under-gardener and boy kept. Must have thorough knowledge of growing vegetables, fruit and flowers; small greenhouse; good cottage.—Aply, stating wages required, with copy of references, to SIR ROBERT GARDINER, Westwood, Mayfield, Sussex.

PUBLIC School requires young HEAD WORKING GARDENER; playing fields, flowers and vegetables; must be good manager; five others in staff; good cottage.—Send testimonials and state wages to SCHOOL, Box 34, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, immediately, thoroughly experienced grower of vegetables and fruit, near Leatherhead. Must be capable to take charge and plan extension of kitchen garden for all-the-year-round production. Single man with institutional experience preferred. Splendid opportunity for hard-working and intelligent worker. To live in or out. State age, experience nd wages required. Only those with first-class references need apply.—Write, L. H. D., Box 41, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, experienced GARDENER for Fawley, Southampton, knowledge poultry. Help given, cottage. Wife good cook, when required; charge of house owner's absence.—Write, fully, LADY D., 53, Sussex Gardens, W.2.

WANTED, good SINGLE-HANDED GARDENER; boy kept; married, age 30-35.—State full particulars, MISS CURTIS, Coombe End House, Marlborough, Wilts.

GARDENER, SINGLE-HANDED, help given when required, one who can drive car preferred; Wife assist in house; one lady; separate furnished apartments; good wages, coal and extras.—Full particulars, and copy refs., to SCRAGG, St. Chads, Gt. Clacton, Clacton-on-Sea.

GARDENER, age about 30, wanted for North London; must understand herbaceous borders; moderate size pleasure and vegetable garden. Permanent post for conscientious man; no cottage; single man preferred.—Apply, by letter, stating wages required and experience, to E. BARBER, 17, Queen Anne's Gardens, Bush Hill Park, Enfield.

GARDENER, SECOND, must have had all-round experience; references required; wage £2, duty 5/-.—Apply, F. GARNER, The Gardens, Coval Lodge, Temple Sheen, East Sheen, S.W.14.

WANTED, good SECOND GARDENER, single, experienced Vines, Peaches, Figs, Melons Carnations, etc.; wages 45/- per week, no bothy, duty every third week, 5/-.—Apply, stating full particulars, to H. STYLES, The Gardens, Mill House, Holmwood, Surrey.

WANTED, SECOND GARDENER, married, experienced, Inside and Out.—Particulars and copies of references to CAPT. TAILBY, Skeffington Hall, Leicestershire.

FOREMAN of three wanted for greenhouses: must have thorough knowledge of fruit, flowers. and Orchids and be good decorator; eleven in gardens; wages 45/-, bothy and attendance.—Write, with full particulars, or apply personally, to TRATT, The Grange Gardens, Farnham Common, Near Slough.

WANTED, active MAN, single, experienced in kitchen and flower gardens; seven kept; lodgings near gardens; wages 38/- per week.—Age and references to J. HILSON, Penstowe Gardens, Kilkhampton, Holsworthy, Devon.

WANTED, experienced MAN for pleasure grounds; Atco mower, take duty.—Copy references; bothy.—CARTER, Gwernyfed Gardens, Three Cocks, Breconshire.

WANTED, MAN for Inside and Out; age about 22, lodgings close to garden.—Apply, with references, wages required, to HEAD GARDENER, Sandford Park, Sandford St. Martin, Oxford.

WANTED, FIRST JOURNEYMAN for pleasure grounds, well up to his work, able to take duty; highest references from head gardener. F. CAPP, Nostell Priory Gardens, Wakefield.

FIRST-CLASS JOURNEYMAN required for pleasure gardens; eleven kept; must be thoroughly experienced and have good references; wages 36/-, bothy and attendance, duty extra.—Write, with full particulars, or apply personally, to TRATT, The Grange Gardens, Farnham Common, Near Slough.

FIRST-CLASS JOURNEYMAN required, Inside, about 24, must be thoroughly experienced and have good references. State wages with good bothy.—Apply, GARDENER, The Croft Gardens, Stanmore, Middlesex.

WANTED, JOURNEYMAN, pleasure grounds; age 22, strong; wages 32/-, duty 3/-; bothy and vegetables.—FRIEND, Wytham Abbey, Oxford.

WANTED, SECOND JOURNEYMAN, Inside; 30/- per week, bothy and attendance; duty 9/- every third week; must be smart, keen and interested.—JAMES STAWARD, Thorp Perrow Gardens, Bedale, Yorks.

TRADE.

WANTED, PROPAGATOR for herbaceous nursery, with a knowledge of plants, and able to take charge of some stock under supervision. State wages required and full particulars.—S. W. P., Box 15, 5, Tavistock Street, Covent Garden, W.C.2.

GROWER wanted, young and energetic, good plantsman and propagator, well up in Dahlias, Carnations and all florists' flowers, Cyclamen, Calceolarias, Cinerarias, etc.—Apply, stating age, experience and salary expected, to JOHN PEED & SON, West Norwood, London.

ORD BROTHERS, West Chirton Nurseries, North Shields, want young man as CHARGE HAND for Greenhouses. Two-roomed house available.—Apply, by letter, giving full particulars and wages required.

WANTED, several smart young MEN, aged 16 to 22, with some experience of Roses and Carnations. Wages according to age and experience.—Apply by letter, in first place, to LOWE AND SHAWYER, Nurseries, Uxbridge, Middlesex.

BULB AND SEED TRADE.

ASSISTANT wanted with previous experience in executing mail orders.—Write full particulars, age and wages required, BARR & SONS (Private), King Street, Covent Garden, W.C.2.

WANTED, any time between now and August 1st, CLERK, with experience of contract and costing work in Wholesale Seed Trade.—Write, stating experience, age, salary expected, copies of references and fullest particulars with first application, to A. B. C., Box 18, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, by a leading house, for retai hardy plant department, first-class CORRESPONDENCE CLERK, with practical knowledge of herbaceous plants, and ability to prepare and draw planting plans.—Write, with full particulars, salary required, age, experience, references, to S. K. L., Box 23, 5, Tavistock Street, Covent Garden, W.C.2

WANTED, young Lady, experienced in designs and sales, as FIRST HAND under Manageress, for branch near London. State age and experience.—W. D., Box 36, 5, Tavistock Street, Covent Garden, W.C. 2.

SITUATIONS WANTED

Twenty words **2s.,** *and* **6d.** *for every succeeding eight words or portion thereof. (Advertisements at this reduced rate are only accepted direct from gardeners and nursery employees). Fee for having replies addressed to the office,* **1s.,** *over and above the amount payable for* **all** *words appearing in the advertisement, including* **our own address**

PRIVATE.

GARDENER, HEAD and BAILIFF, life experience in all branches, excellent references.—Apply, HEAD GARDENER, c/o R. & G. Cuthbert, Ltd., Southgate, N.14.

GARDENER, or GARDENER-BAILIFF.— Mrs. Fitzhugh highly recommends her head Gardener as above. Life experience, 10 years present situation; age 46, married.—E. SLADE, Plas Power Gardens, Wrexham.

H. TWYFORD, Esq., wishes to highly recommend A. McKENZIE as HEAD GARDENER, where 5 or more are kept; life experience in good establishments; at liberty when suited.—Apply, McKENZIE, The Gardens, Possil House, Copse Hill, Wimbledon, S.W.20

HEAD GARDENER, highly recommended, would like change; 21 years' experience all branches, keen, hard-working; age 46, married, no children; not afraid to tackle neglected garden; cottage required.—PEARSON, The Cottage, Loncin Mead, Addlestone, Surrey.

GARDENER, 28 years' first-class ref., 16 years HEAD; married, 42; present place 7 years.—CHERRY, Holly Terrace, Whetstone. N.

MRS. LOGIE PIRIE, Tottingworth Park, Heathfield, Sussex, highly recommends her late HEAD GARDENER, Scotsman, good organiser, well up in all branches, Inside and Out; used to large establishments; disengaged.—Apply, J. KIDD, Kirkwick Nurseries, Harpenden.

HEAD GARDENER, two or three kept, seeks situation; good all-round knowledge of Inside and Outside work; highly recommended.—F. STOCK, Oakford Lodge, Petersfield, Hants.

THE BISHOP OF WINCHESTER highly recommends his Head Working Gardener as HEAD or GARDENER-BAILIFF, where several are kept.—A. TOMLINSON, Farnham Castle Gardens, Surrey.

HEAD GARDENER.—Mr. James Staward, Head Gardener, Thorp Perrow Gardens, Bedale, Yorks, highly recommends his late Foreman as HEAD to lady or gentleman requiring good man.

GARDENER, HEAD WORKING, life experience, all branches, good references, age 30, 13 years Head; married.—BALLS, Thickthorn Hall, Near Norwich.

SIR ALFRED GOODSON, Bt., will highly recommend J. CROSS as HEAD WORKING GARDENER where several kept; life experience in all forms of gardening; excellent references; married, no family.—Apply, J. CROSS, Waddeton Court, Brixham, S. Devon.

HEAD WORKING GARDENER seeks re-engagement where several are kept; age 45, married, 2 children; 17 years' experience as Head; highly recommended.—A. PORTER, Stoke Lodge, Cobham, Surrey.

GARDENER, HEAD WORKING, life experience all branches gained in large establishments; excellent references, highly recommended by present employer; age 35, married.—SLATTER, Bradenham Road, West Wycombe.

GARDENER, HEAD WORKING of 2, experience in all branches; married, 42, family 3, excellent references.—PENFOLD, West Horsley Place, West Horsley, Surrey.

GARDENER, HEAD WORKING, would like change for the better; 4 years present place, Head of 3 in small, well-kept establishment; Scotsman, trained in fine establishments in Scotland and England; all branches; exceptional ability; married, no family; age 32; splendid testimonials; 2 R.H.S. Certificates of Merit. North or Midlands. Please enquire, M. J. K., Box 40, 5, Tavistock Street, Covent Garden, W.C.2.

HEAD WORKING GARDENER, life experience all branches, Inside and Out; capable organiser and manager; excellent references; married, 1 boy 13.—C. W. O., Box 39, 5, Tavistock Street, Covent Garden, W.C.2.

MESSRS. CROW, Land Agents, Dorking, confidently recommend HEAD WORKING GARDENER who has been in present post seven years; leaving owing to estate being sold; life experience in all branches; age 40; wife, and boy of 13 at home.—F. STREET, Leybourne Grange Gardens, West Malling, Kent.

GARDENER seeks situation as HEAD WORKING or good SINGLE-HANDED; thoroughly experienced all branches, good references; age 38, married; disengaged when suited.—LEWIS, Laurel Villa, Warsash, Hants.

GARDENER, with help, experienced all branches, Inside and Out, married, no family, middle age, very energetic, good references; disengaged July 2nd; cottage preferred.—GARDENER, The Cottage, Redgate House, Reigate.

GARDENER, SINGLE-HANDED seeks situation; 9 years' experience with good reference; age 35 years, married, no children.—Apply C. H. STAGG, 2, Hillside Terrace, West End Lane, High Barnet, Herts.

GARDENER, SINGLE-HANDED, seeks situation, 9 years in present post; age 33; leaving owing to estate being sold; life's experience in all branches; cottage.—G. BLOWES, 11, Canon Road, Bromley.

GARDENER, SINGLE-HANDED, seeks situation at country house; would learn drive car; good refs.—Apply, in first instance, to E. C. S., Box 35, 5, Tavistock Street, Covent Garden, W.C.2.

GARDENER, good SINGLE-HANDED, with help; life experience, good references; age 36 years, married. State wage, with cottage; disengaged July 23.—W. F. C., Box 43, 5, Tavistock Street, Covent Garden, W.C.2.

H. A. SMITH highly recommends L. CALVER SINGLE-HANDED or otherwise; excellent testimonials; age 38, married, 1 child. — L. CALVER, Braunston, Near Rugby.

GARDENER, 30, life experience, seeks situation; cottage required; no children; well recommended.—H., c/o Hunts, Newsagent, Godalming, Surrey.

GARDENER, experienced, all branches, seeks situation; willing; poultry, pigs, etc.; 27 years, 2 young children; disengaged; cottage required.—J. REDDING, 18, Barbara Street, Barnsbury, London, N.7.

MR. KEMBER, Head Gardener, highly recommends H. HOUNSOM as SECOND; thoroughly experienced, married, no family.—Cobham Park Gardens, Cobham, Surrey.

HEAD Gardener recommends SECOND GARDENER, well experienced, used motor-mowers; married, age 28, no family.—Woolley Hall Gardens, Maidenhead, Berks.

INSIDE FOREMAN desires change; nearly 3 years present situation; 12 years' experience, fruit and plants; age 26; excellent references; near Derby preferred.—EMMETT, Woodhouse Gardens, Tettenhall, Wolverhampton.

FOREMAN seeks situation, Inside or Inside and Out; life experience gained in good establishments; excellent references; age 28, married.—Apply, E. FREEMAN, Magpie Farm, Frilsham, Nr. Newbury, Berks.

FOREMAN, life experience Inside, Grapes, Peaches, Nectarines, Melons, Carnations, Chrysanthemums and general plants; well recommended; single.—H. J. GRIFFIN, 55, Sussex Place, Slough.

FOREMAN (Inside) seeks situation, age 30, single, fully experienced, fruit and plants; excellent references; disengaged.—B. J. HUSSEY, 2, Oratory Villas, Caversham Park, Reading.

MR. PENTON very highly recommends E. HEWITT, age 22, as LEAD for pleasure grounds; good scythe and motor-mower; leaving through place being sold; bothy required.—Address, Warren House, Kingston Hill, Surrey.

UNDER-GARDENER seeks situation, used to motor-mower; can take duty; married, age 29, no family; excellent references.—T., c/o Romany, W. Byfleet, Surrey.

GROUNDSMAN, single, experienced pleasure and sports grounds work and motor mowers desires change; ref.—C. B., Box 33, 5, Tavistock Street, Covent Garden, W.C.2.

GARDENER, Inside and Out, 28, married; motor-mower, scythe; disengaged when suited.—LEVETT, Harwood Hall Garage, Corbets Tey, Upminster, Essex.

JOURNEYMAN, FIRST, seeks situation, Inside, age 25, good experience in fruit and plants; recommended.—J. WRAY, Preston, Nr. Hitchin, Herts.

JOURNEYMAN, age 25, Inside and Out, bothy, Mr. Penton, Warren House, Kingston Hill, Surrey, highly and confidently recommends WM. NEW, 6 years here; leaving through place being sold.—Address above.

JOURNEYMAN seeks situation, Inside and Out; 10½ years kitchen, pleasure, Inside; age 24. Herts, London.—Reply, H. MITCHELL, 4, Blays Lane, Englefield Green, Surrey.

JOURNEYMAN seeks situation, kitchen garden or pleasure ground; age 21, well recommended.—NEATE, Yattendon House Gardens, Newbury, Berks.

MR. TURNER, Albury Park Gardens, Guildford, recommends JOURNEYMAN, Inside, who is anxious to gain experience of fruit and flowers; strong, willing and able to take duty; age 21.

MR. TURNER, Albury Park Gardens, recommends strong YOUTH for pleasure grounds, with some experience; age 16, willing and obliging.

GARDENER-CHAUFFEUR experienced cars, electric light plant; 9 years' experience garden, Inside and Out; good references, age 24, abstainer, married when suited.—F. SULLIVAN, Shortwood Hill, Pucklechurch, Gloucestershire.

ESTATE HANDYMAN, exp. painter, decorator, carpentry, electric lighting, drive car; excellent references; age 26, married.—HALL, 98, Woodland Road, Upper Norwood, S.E.19.

PUPIL desires work in gardens or orchards for three months; resident or non-resident.—MISS GODDARD, Waterloo Field, Chilworth, Surrey.

TRADE.

FOREMAN GROWER, with wide experience gained Inside in market nurseries, also private establishments, requires post; well recommended, single.—H. GRIFFIN, 55, Sussex Place, Slough.

FOREMAN and GROWER, London-Provincial experience with soft-wooded, bedding, Ferns, flowering, decorative and pot plants; hardy stuff, cut bloom, fruit, propagation, branches requirements, etc.—good references.—C. W., Ivy Cottage, Leighs, Chelmsford.

GROWER seeks situation, Inside and Out, nursery or private; Toms., Cues., bulbs, bedding and general pot plants; small wage with bothy; age 43, single, good worker; refs. State wages.—S. WHITELEGG, 81, Albert Road, Retford, Notts.

KNIFESMAN seeks situation, six years' experience Barnham Nurseries, Ltd., in fruit, Roses and shrubs.—C. HUDSON, Church Road, Yapton, Near Arundel, Sussex.

YOUNG MAN, age 22, seeks situation, Inside and Out, trade or private; 8½ years' experience, good refs.—A. KNOX, 45, Bridge Street, Oakworth, Near Keighley.

HEAD SHOPMAN, MANAGER, nursery and seed trade; fifteen years Flower Seed Manager leading wholesale house.—ARTHUR TURNER, Brook House, Hastings.

SEED TRADE.—ASSISTANT, age 22, 6 years' experience in all branches; excellent references.—R. BEETON, Stourvale Nursery, Christchurch, Hants.

SEEDSMAN, 21, good refs., seeks post, London; 6 years' exp., farm, garden seeds, testing, etc.; travel for interview.—J. HORNE, Seed Testing Station, Dept. Agric., Merrion Street, Dublin.

LADY GARDENER, Reading Diploma, young keen worker, desires employment; interested market gardening, knowledge poultry, cows.—BULLOCK, The Stumps, Ruislip, Middlesex.

The Ohio State University
3 2435 06194804 8

THE OHIO STATE UNIVERSITY BOOK DEPOSITORY
D AISLE SECT SHLF SIDE POS ITEM C
8 03 07 11 7 02 006 7